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## E. U. de Enfermería y Fisioterapia

Curso de adaptación al grado en Enfermería

# TRABAJO FIN DE GRADO

**Trabajo de carácter profesional.**
**Descripción de un caso clínico.**

# PROCESO DE ATENCIÓN DE ENFERMERÍA A UN PACIENTE CON FIBRILACIÓN AURICULAR

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## RESUMEN

En el siguiente trabajo se explica el plan de cuidados de enfermería a un paciente con fibrilación auricular en la unidad de cuidados médicos progresivos (UCMP) en el hospital UPMC Altoona Hospital en Pensilvania, Estados Unidos. Para ello, se explica brevemente el paso del paciente por el departamento de urgencias y su posterior derivación a UCMP. A continuación, se nombra, en orden cronológico, las intervenciones médicas a las que fue sometido para intentar revertir la arritmia con sus consiguientes cuidados de enfermería. Dichas intervenciones fueron: tratamiento farmacológico con Diltiazem y Amiodarona, ecocardiograma transesofágico, cateterismo cardíaco y, finalmente, cardioversión eléctrica. Al mismo tiempo, se enumeran y explican las intervenciones realizadas por parte del equipo de enfermería durante la estancia del paciente en el hospital. Después de cada intervención, se especifica la eficacia de los mismos en este caso clínico en concreto.



**Palabras clave:** Fibrilación auricular, cardioversión, ecocardiograma transesofágico, cateterismo cardíaco, coronografía.

# INTRODUCCIÓN

Este trabajo consistirá en un plan de cuidados de Enfermería a un paciente con fibrilación auricular. Puesto que el hospital donde trabajo se sitúa en Estados Unidos y su sistema de trabajo es diferente, el plan de cuidados que voy a exponer difiere casi en su totalidad de un plan de cuidados de enfermería implementado en un hospital español.

La fibrilación auricular pertenece a la categoría médica de arritmias cardíacas, las cuales se producen cuando desarrollamos un problema con la velocidad o el ritmo de los latidos del corazón. En la fibrilación auricular se altera la secuencia de activación del corazón y las aurículas mandan múltiples estímulos a diferentes partes del corazón (1). Como consecuencia, el ritmo cardíaco pasa a ser irregular y elevado. Los síntomas incluyen: palpitaciones, falta de aire, dolor en el pecho, mareos, desmayos, cansancio y confusión. La mayor complicación de la fibrilación auricular es la embolia, por ello, los pacientes que la padecen deben tomar anticoagulantes (2).

Según el *Center for Disease Control and Prevention* de Estados Unidos, la fibrilación auricular es la arritmia cardíaca más frecuente, afectando a una media estimada de 2.7 a 6.1 millones de personas solo en este país (3). Mi caso de estudio clínico se centra específicamente en los cuidados ofrecidos en la Unidad de Cuidados Médicos Progresivos (UCMP) [*Medical Progressive Care Unit*] del Centro Médico en Altoona de la Universidad de Pittsburgh (CMUP Altoona) [*University of Pittsburgh Medical Center Altoona*], en Altoona, Pensilvania, Estados Unidos. En esta introducción, se explicará el proceso de admisión a dicha unidad, luego se presentarán los conceptos clave para comprender el plan de cuidados que voy a exponer, y para concluir se explicarán los procedimientos médicos protocolarios que se llevan a cabo en pacientes con fibrilación auricular.

En lo que respecta a la admisión a la unidad en la que trabajo, los dos criterios generales de admisión son: la necesidad de monitorización cardíaca continuada y el padecimiento de una condición cardíaca crítica pero estable (como, por ejemplo, haber sufrido un infarto agudo de miocardio sin complicaciones,

padecer de angina estable, o tener diagnosticada una miocarditis no resuelta) (Anexo 1). El paciente es derivado a UCMP, generalmente a través de urgencias, únicamente por el especialista que le ha sido asignado en el momento de su admisión al hospital. Dicho especialista estará a cargo de su tratamiento durante todo el proceso hospitalario.

Antes de entrar en detalle en los procedimientos, cabe aclarar ciertos conceptos para entender cómo funciona el sistema hospitalario norteamericano. Primero explicaré qué son el equipo de técnicas intravenosas [*I.V. team*] y el laboratorio cardíaco. En Norteamérica, con el fin de lograr una mayor eficiencia asistencial, los hospitales norteamericanos se organizan en función de diferentes equipos especializados. Uno de estos equipos es el de técnicas intravenosas, el cual está compuesto por flebotomistas y enfermeras. Mientras que las flebotomistas sólo realizan venopunciones, las enfermeras realizan punciones arteriales e insertan vías periféricas y catéteres centrales de inserción periférica. El laboratorio cardíaco [*catheterization laboratory*], por su parte, es un espacio reservado para pruebas diagnósticas como el cateterismo coronario con coronografía y para procedimientos no invasivos como, por ejemplo, la cardioversión eléctrica.

Los procedimientos médicos que se aplican a pacientes con fibrilación auricular de forma protocolaria en la unidad donde trabajo son, a saber: cardioversión química, cardioversión eléctrica y cateterización cardíaca con coronariografía. La cardioversión química es el primer paso en el tratamiento de esta arritmia. Para ello, se trata al paciente con anticoagulantes y Amiodarona. Los anticoagulantes ayudan a prevenir el ictus y la embolia sistémica provocados por esta patología cardíaca. La Amiodarona actúa directamente sobre el miocardio retrasando la conducción eléctrica, prolongando el periodo refractario en el nodo auriculoventricular y controlando la respuesta ventricular a la fibrilación auricular (4).

Si la cardioversión química no funciona, se procede a la cardioversión eléctrica. Esta técnica consiste en la aplicación de una corriente eléctrica que atraviesa el corazón en el momento en que el miocardio comienza a contraerse (onda R en el electrocardiograma). Al descargarse dicha corriente, se interrumpe

brevemente la actividad eléctrica del corazón, permitiendo que éste retorne un ritmo cardíaco normal. La cantidad de julios administrada depende de las características del paciente y de la arritmia (5).

Si se sospecha de bloqueo coronario arterial, también se puede considerar la realización de un cateterismo cardíaco. Ésta es una técnica invasiva que permite, entre otras cosas, valorar la anatomía del corazón y las arterias coronarias, medir presiones de las cavidades cardíacas y localizar trombosis. Para llevarla a cabo, se ha de insertar un catéter a través de la arteria femoral o radial. Una vez cerca del corazón la técnica permite: colocar muelles [*stents*] en arterias ocluidas, cerrar vasos sanguíneos que deberían estar ya cerrados, pero permanecen abiertos (como el ductus arterioso) o implantar prótesis. Dichos muelles simulan la estructura de una malla metálica y están impregnados en sustancias químicas que inhiben la regeneración de obstrucción cicatricial en la zona de obstrucción coronaria previa. La coronografía sirve como complemento del cateterismo cardíaco, permitiéndonos visualizar el estado de las arterias coronarias a través de rayos X al inyectar contraste directamente en el sistema circulatorio (6).

En las siguientes páginas se expondrá el plan de cuidados a un paciente con fibrilación auricular en el que los tratamientos protocolarios no resultaron efectivos en un inicio. Para ello, se presentará la admisión del paciente a través de urgencias con dicho diagnóstico, los cuidados realizados en mi unidad, los procedimientos médicos a los que fue sometido el paciente y los resultados de los mismos.

**Objetivos:**

Los objetivos principales establecidos en el cuidado del paciente fueron otorgar el mejor cuidado posible durante su estancia en el hospital, revertir la arritmia devolviendo el ritmo cardíaco a ritmo sinusal e intentar mejorar el estado general de salud del paciente.

Por otra parte, el objetivo personal, al realizar este estudio de un caso clínico, es exponer las intervenciones de enfermería que se realizan en Estados Unidos. Mi intención es provocar en el lector un sentimiento de intriga que le anime a comparar la organización sanitaria e intervenciones de enfermería que se realizan en este país con los que dicho lector conoce.

# DESARROLLO DEL TEMA

**8 de octubre del 2017**

El pasado mes de octubre, un paciente de 76 años fue atendido en Urgencias con un cuadro clínico de náusea constante, vómitos y dificultad respiratoria. Los síntomas se iniciaron cinco días antes de su admisión al hospital, pero el paciente no consideró importante buscar ayuda médica en el momento. Cuando se procedió a tomar la tensión arterial, los resultados fueron 195/90, comprobado manualmente. Además, los resultados de la analítica sanguínea mostraban, entre otros resultados, Troponinas positivas a un nivel de 6.1. Al conectar el paciente a un monitor cardíaco, se observó un ritmo específico que coincidía en características con fibrilación auricular (ondas P no discernibles, intervalos irregulares entre ondas R y pulso elevado superior a 120 pulsaciones por minuto).

Una vez que el paciente fue admitido en Urgencias, se le diagnosticó insuficiencia cardíaca congestiva aguda con disfunción sistólica, fibrilación auricular de nuevo inicio e hipertensión. El plan de acción en este departamento consistió en:

- Administrar Diltiazem intravenoso para tratar de controlar la tensión arterial (7).
    - Dosis inicial: 10 mg administrado en forma de bolo intravenoso durante 2 minutos.
    - Dosis de mantenimiento: 10 mg/hora.
- Administrar Pradaxa (Dabigatrán) oral para anticoagular la sangre y evitar la presencia de trombos (8).
    - Dosis: 150 mg, dos veces al día.
- Administrar oxígeno a un ritmo de 2 litros por minuto para mantener los niveles de saturación de oxígeno superiores a 93%.
- Realizar un ecocardiograma transesofágico, cuyo resultado mostró una fracción de eyección ventricular izquierda del 40%, regurgitación mitral moderada y efusión pericárdica leve. Este procedimiento se usa también para comprobar la presencia de trombos en la aurícula (1).
- Trasladar el paciente a mi unidad, UCMP.

El sujeto fue aceptado como paciente en UCMP, tras haber recibido por vía telefónica un informe completo de la enfermera que lo atendió en Urgencias. Durante la admisión, realizada a las 8 de la mañana, comprobé la identidad del paciente con dos datos identificativos diferentes (nombre y apellidos, y fecha de nacimiento), verifiqué que la bomba de perfusión del Diltiazem estaba programada con los parámetros correctos (Figuras 1 y 2), imprimí y coloqué un tira de ritmo (Figura3) en la carpeta del paciente, contrasté los datos recogidos en el formulario de admisión completado en Urgencias (entre ellos, la medicación que el paciente toma en casa, farmacia de preferencia, creencias religiosas y estado civil (Anexo 2)) y realicé una valoración completa del paciente, la cual introduje en su historia clínica electrónica desde mi ordenador (Figura 4):

- Tensión arterial: 117/79.
- Pulso: 107.
- Respiraciones: 18/minuto.
- Temperatura: 36. 8º C.
- Saturación de oxígeno: 97% con oxígeno a 2L/min.
- BMI: 27.6.
- Sistema respiratorio: caja torácica simétrica, ruidos inspiratorios disminuidos, sonidos crepitantes, saturación al 96% con 2 litros de oxígeno por minuto.
- Sistema cardiovascular: sin soplos ni roce pericárdico, taquicardia como resultado de fibrilación auricular.
- Sistema digestivo: abdomen blando, sonidos abdominales activos.
- Sistema tegumentario: apariencia normal, piel intacta y sin signos de cianosis. Edema + 2 en extremidades inferiores.

Por último, comprobé que el equipo de enfermería en Urgencias había introducido órdenes en el sistema informático para comprobar los niveles de Troponinas 6 horas después de haber obtenido el primer resultado, puesto que necesitamos saber si los niveles ascienden o descienden para tomar las acciones apropiadas.

Por protocolo, en CMUP Altoona, los planes de acción, los relevos, la introducción de medicaciones nuevas y los planes de cuidados deben explicarse delante del paciente. Por tanto, una vez asentado en nuestra unidad, envié un mensaje al busca del cardiólogo, Doctor Jabbour, para informarle de la nueva ubicación del paciente. Doctor Jabbour nos convocó a mí y al sujeto para discutir el plan de acción: administración intravenosa de Diltiazem para controlar la hipertensión, Amiodarona para tratar de revertir la arritmia cardíaca de forma química durante 24 horas, terapia intravenosa con Furosemida en bolo para reducir el edema, administración de suero salino para prevenir la deshidratación, realización de un cateterismo cardíaco con coronografía para descartar isquemia en tejidos cardíacos, programada para el día siguiente puesto que el paciente debe permanecer en ayunas por al menos 6 horas, y, en caso de cardioversión química fallida, cardioversión eléctrica.

Antes de que el especialista abandonara la habitación y una vez finalizada la reunión, me aseguré de que el paciente no tuviera dudas sobre los tratamientos a seguir y comprobé que los consentimientos informados para el cateterismo y la cardioversión eléctrica estuvieran firmados (Anexos 3 y 4). También comprobé el ritmo de infusión del Diltiazem intravenoso, 10 miligramos por hora y procedí a implantar el protocolo de acción de enfermería para pacientes recibiendo este fármaco. Dicho protocolo consiste en programar el esfigmomanómetro digital para tomar la tensión arterial automáticamente cada hora y mandar los resultados directamente a la historia clínica electrónica del paciente (Figura 5). Esto resulta extremadamente útil, puesto que todo el personal sanitario asignado al cuidado del paciente puede acceder a su historia, alertar al resto del equipo si los valores no están dentro de los parámetros deseados y tomar las medidas necesarias dependiendo de los mismos.

El siguiente paso a tomar fue la suministración de la medicación. Dado que la Amiodarona y el Diltiazem son considerados incompatibles con la Furosemida, no se pueden administrar a través de la misma vía intravenosa al mismo tiempo (Anexo 5) (9). Además, puesto que los dos primeros estaban prescritos como infusión continua, necesitaba un nuevo acceso para administrar la Furosemida. A pesar de no tener datos que confirmen si la Amiodarona es o no compatible con el Diltiazem, por

protocolo, administramos estos fármacos a través de vías intravenosas distintas (Anexo 5). Por otra parte, esta nueva vía también sería considerada acceso de apoyo durante el cateterismo cardíaco con coronariografía que estaba programado, es decir, en caso de emergencia podría ser utilizada para administrar líquidos a mayor velocidad. Por ello, solicité al equipo de técnicas intravenosas que insertaran un nuevo acceso intravenoso para administrar los fármacos prescritos.

Una vez el equipo intravenoso insertó la nueva vía periférica, administré los 40 miligramos de Furosemida prescritos por el médico, acción que estaba ordenada repetir 2 veces al día, a las 9:00 y a las 21:00 horas (10). A continuación, administré un bolo de suero salino de 10 mililitros para limpiar la vía, esperé 5 minutos y conecté el paciente a la bomba de infusión de Amiodarona. Programé la bomba para administrar el fármaco según los parámetros establecidos por protocolo, es decir, 150 miligramos en bolo administrado durante 10 minutos. Una vez administrado el bolo, la bomba se reprograma para administrar 33.3 miligramos por hora durante 6 horas. Tras esas 6 horas, la bomba se reprograma de nuevo a un ritmo de 16.6 miligramos por hora hasta que el cardiólogo considera necesario (11). Puesto que UCMP vigila la función cardíaca de todos sus pacientes a través de monitorización cardíaca continua e imprimiendo, leyendo y documentando en el sistema informático tiras de ritmo cada 4 horas, no fue necesario llevar a cabo medidas adicionales para vigilar la efectividad del antiarrítmico administrado (Figuras 6 y 7).

Como última intervención ese día, accedí al sistema informático para insertar varias órdenes médicas relativas al cuidado nutricional y farmacológico del paciente. Ordené una dieta restrictiva en fluidos (máximo 2 litros diarios, a causa del edema presente), sodio (máximo 2 gramos diarios, debido a su tensión arterial y al edema presente) y carbohidratos (60 gramos por comida puesto que el paciente era diabético) (Figura 8).

También introduje cuatro instrucciones en relación con los procedimientos médicos que se iban a realizar en la mañana siguiente: el paciente debería estar en ayunas (excepto para medicación) desde medianoche, una vez iniciado el periodo de ayunas, el sujeto recibiría suero salino intravenoso a un ritmo de 15 mililitros por hora a través de bomba de infusión para evitar deshidratación. La alargadera

conectada al suero salino sería conectada al punto de inyección del sistema de administración del Diltiazem, creando así un sistema en Y. La bomba de perfusión admite la programación de diferentes parámetros para diferentes alargaderas, permitiendo administrar diferentes fármacos a diferentes ritmos a través de la misma vía periférica.

Al mismo tiempo, cancelé la orden de administración de Metformina para controlar su diabetes durante el día del ingreso y dos días post-cateterismo cardíaco. El protocolo establece como motivo para no administrar esta medicación la prevención del posible desarrollo de acidosis láctica. Esta rara complicación sucede solo si el contraste causa fallo renal y el paciente continúa tomando Metformina, puesto que este fármaco se excreta por riñón y se produciría una acumulación tóxica del mismo (12). La última orden fue cancelar la administración de anticoagulantes tanto para ese día como para el día de la cateterización cardíaca. Por suerte, el paciente solo había tomado una dosis de Dabigatrán, por tanto, la realización de dicho procedimiento invasivo no suponía ningún peligro para el sujeto.

Sobre las 13:00 horas recibí los resultados de la analítica de sangre. Las Troponinas seguían siendo positivas, pero los niveles estaban descendiendo, por tanto, no fue necesario notificar al cardiólogo (Figura 9). A las 19:30 horas, cuando mi turno se acabó, informé a la enfermera de noches sobre la situación del paciente. El único objetivo logrado hasta aquel momento había sido conseguir reducir la hipertensión arterial a normotensión.

**9 de octubre del 2017**

Comencé mi turno a las 7:00 horas. La enfermera que me dio el relevo me informó de que el paciente había perdido 1.6 kilogramos en 24 horas y de que el balance hídrico era negativo, prueba de que la Furosemida estaba funcionando (Figura 10). Sin embargo, el ritmo cardíaco seguía siendo fibrilación auricular. Tras recibir el relevo, procedí a realizar un examen rutinario del paciente por sistemas. La única diferencia notable fue la categorización del edema de las extremidades inferiores, el cual pasó de ser de +2 el día anterior a +1.

Aproximadamente a las 8:30 horas, recibí una llamada del enfermero del laboratorio cardíaco. El equipo estaba listo para la cateterización cardíaca y querían que les diera un informe completo del paciente vía telefónica antes de recibirle. Para ello, se debe seguir un guión escrito en el cual se comparte el día del ingreso del paciente, los signos y síntomas que le llevaron a buscar ayuda y su estado actual, incluyendo signos vitales, última analítica, localización de las vías intravenosas y medicación administrada (Figura 11). La información compartida, junto con el formulario pre-operatorio que a continuación explicaré (Figuras 12 y 13) y el acceso a las notas informáticas sobre el paciente, ayudan al equipo a tener una visión general sobre el paciente.

Una vez terminada la conversación telefónica, inicié las intervenciones de enfermería para el preparar el cateterismo cardíaco: Rellené el formulario pre-intervención en el sistema informático, el cual pregunta por datos como los resultados del último INR, niveles de glucosa, presión sanguínea, última dosis de beta bloqueador administrada y presencia de implantes metálicos entre otros. Me aseguré de que el sujeto sólo llevaba puesta la bata del hospital (no se permite que el paciente lleve ropa interior) y de que utilizara el baño antes de ser trasladado (deben acceder al laboratorio cardíaco con la vejiga vacía). Coloqué el maguito de presión arterial en su brazo (todo paciente debe ser siempre trasladado con un manguito desechable, el cual se facilita una vez el mismo es admitido en una unidad (Figura 14). Conecté una bolsa de Suero Salino 0.9% a una nueva alargadera y ésta a un regulador del flujo (Dial-a-flow) a un ritmo de 10 mililitros por hora, tal y como establece el protocolo (Figura 15). A continuación, retiré todo objeto metálico que el paciente llevaba (su anillo de bodas y las gafas). Por último, accedí al programa informático Teletracking, donde se puede pedir transporte para pacientes especificando qué necesidades tiene (Figura 16). En este caso, pedí que trajeran una camilla con soporte para goteros, un tanque de oxígeno portátil y que trasladaran al paciente al octavo piso, dónde se encuentra el laboratorio cardíaco. A las 8:55 horas, el sujeto abandonó UCMP.

A las 11:30, el mismo enfermero del laboratorio cardíaco con el que había hablado anteriormente me llamó a UCMP para informarme sobre los resultados de la

intervención y de la cancelación de la orden de permanecer en ayunas. El cardiólogo accedió a sus arterias a través de la arteria radial izquierda y descubrió una oclusión del 95% en la arteria coronaria descendente anterior izquierda, por tanto, colocó un muelle que consiguió abrir de nuevo el vaso sanguíneo.

A las 11:50 horas, el sujeto regresó a UCMP desde la unidad del despertar, a donde fue trasladado tras la intervención. Como protocolo rutinario, procedí a valorar al paciente por sistemas y a leer y documentar el ritmo cardíaco a través de su monitor cardíaco portátil. A continuación, instauré el protocolo de cuidados de enfermería post-cateterismo cardíaco, a saber: programé el monitor de constantes vitales para comprobar la tensión arterial y la frecuencia cardíaca cuatro veces en intervalos de 15 minutos, es decir cuatro veces durante una hora, dos veces en intervalos de 30 minutos, es decir dos veces durante otra hora y cada hora durante 4 horas. Además, valoré el sistema neurovascular de la muñeca izquierda cada 15 minutos, es decir, comprobé el pulso, la movilidad y el color de las falanges. Por protocolo, cuando se realizan los controles neurovasculares se debe soltar el dispositivo de compresión radial Finale progresivamente hasta que se retira del todo, aproximadamente una hora después de volver a nuestra unidad (Figura 17). Una vez el Finale es retirado, la valoración neurovascular se considera innecesaria. Como medida cautelar, siempre se debe dejar el dispositivo de presión radial en la mesa de noche del paciente, así, si la arteria sangra de nuevo, podemos reutilizar el dispositivo. Sin embargo, se recomienda seguir utilizando el cabestrillo inmovilizador de muñeca 24 horas post-intervención para prevenir la utilización excesiva de la extremidad (13).

Una vez acabé las comprobaciones de la tensión arterial cada hora, el paciente me informó de que sentía una mejoría general en su estado de salud, sobre todo en su respiración. Comprobé su saturación de oxígeno y el resultado fue de 100% recibiendo 2 litros de oxígeno por minuto. En ese momento inicié el protocolo de reducción en la administración de oxígeno, el cual está dividido en dos pasos: reducción del volumen de oxígeno administrado en grupos de 0.5 litros cada 15 minutos y monitorización constante de la saturación de oxígeno. El valor para considerar este proceso como exitoso es saturación mayor o igual a 94%. El sujeto

mantuvo sus niveles entre un 94 y un 97% sin oxígeno, por lo cual estimé oportuna la retirada completa del oxígeno.

Desafortunadamente, al final de mi turno el paciente seguía en fibrilación auricular a pesar de haber estado recibiendo fármacos antiarrítmicos intravenosos desde su ingreso en mi unidad, es decir, por más de 30 horas. Como consecuencia, Doctor Jabbour decidió programar una cardioversión eléctrica para el día 10 de octubre a las 8:00 horas. Como nota positiva, el sujeto había perdido otro kilogramo a través de excreción urinaria, consiguiendo así volver a su peso base antes de la aparición de los síntomas y reduciendo la categorización del edema de +1 a inexistente.

Antes de abandonar la unidad introduje la orden nutricional de ayunas en el sistema informático, puesto que, aunque la cardioversión eléctrica no es una intervención invasiva, sí se aplica sedación ligera y existe riesgo de entrada de secreciones o fluidos en las vías traqueobronquiales.

**10 de octubre del 2017**

A mi llegada a la unidad fui informada de que el paciente ya se encontraba en el laboratorio cardíaco. Mi compañera había realizado las intervenciones de enfermería pre-procedimiento, las cuales ya nombré anteriormente, pero repetiré de nuevo: dar reporte al enfermero en el laboratorio cardíaco, retirar objetos metálicos del paciente (anillo de matrimonio y gafas), conectar suero salino a un ritmo de 10 mililitros por hora, rellenar el formulario pre-procedimiento, comprobar la validez del consentimiento informado y entregárselo al celador que recoge al paciente.

Una hora más tarde, el enfermero del laboratorio cardíaco me llamó para informarme sobre la situación del paciente. Doctor Jabbour le aplicó una corriente eléctrica de 200 julios, 2 veces, y consiguió revertir la arritmia cardíaca, devolviendo al paciente al ritmo sinusal. La tensión arterial del sujeto se mantuvo bajo control en todo momento y no tuvo necesidad de recibir oxígeno complementario durante su estancia en el laboratorio cardíaco. A la llegada a mi unidad, procedí, de nuevo, a

realizar una valoración por sistemas. En el sistema tegumentario documenté un nuevo hallazgo: dos abrasiones en el pecho, donde se habían colocados las palas. Los cuidados que se ofrecen en este caso son la aplicación de cremas hidratantes y la aplicación de compresas frías.

Como medida preventiva, el sujeto permaneció bajo mi cuidado durante el resto del día y fue dado de alta a las 18.30 horas. Su ritmo y frecuencia cardíaca, presión arterial y saturación de oxígeno permanecieron estables. Como última intervención enfermera se le educó en cuidados post-cateterismo cardíaco y cardioversión eléctrica. Se le facilitaron materiales didácticos impresos y números de teléfono para solventar dudas que le pudieran surgir. Entre otras recomendaciones, se le aconsejó no conducir por tres días, no levantar más de 5 kilogramos con el brazo izquierdo (puesto que se realizó el cateterismo cardíaco a través de la arteria radial izquierda) y permanecer de baja laboral por 2 semanas.

## CONCLUSIÓN

Como conclusión, puedo decir con certeza que en algunas situaciones las primeras medidas de intervención para tratar determinados problemas de salud no son siempre efectivas. En ocasiones, debemos realizar medidas más agresivas, como, en este caso, la cardioversión eléctrica. A pesar de que la fibrilación auricular es un problema grave con posibles complicaciones que empobrecen potencialmente el estado de salud de nuestros pacientes, el tratamiento de la misma es relativamente fácil.

Cabe recalcar también las diferencias entre los planes de cuidados de enfermería en un hospital español y uno americano. Aunque en ambos países el objetivo final sea mejorar, en lo máximo posible, el estado de salud del paciente, en el sistema americano lo más importante es saber delegar tareas a los profesionales pertinentes. En mi unidad examinamos a nuestros pacientes por sistemas cada ocho horas y, en base a los resultados, iniciamos las acciones pertinentes. Por ejemplo, si una enfermera detecta durante el proceso de admisión alguna anomalía en el sistema tegumentario, el siguiente paso es crear una consulta interdisciplinar a través del sistema informático para el servicio de heridas y ostomías [*wound and ostomy team*]. Nosotros, como primeros proveedores de cuidados no estamos autorizados a comenzar ningún plan de cuidados sobre áreas en las que no somos reconocidos como especialistas. Si por el contrario se encuentran anomalías relacionadas con el sistema respiratorio, el personal de enfermería debe mandar un mensaje al busca del equipo de enfermería respiratoria para que vengan a la habitación del paciente y lo evalúen. En UPMC Altoona cualquier enfermero puede manipular el oxígeno que se le administra a un paciente siempre y cuando sea administrado solo a través de cánula nasal y hasta un máximo de seis litros por minuto. Si las necesidades del paciente sobrepasan estos parámetros, los enfermeros del equipo respiratorio son los únicos autorizados para implementar medidas más agresivas como pueden ser las máscaras de administración de oxígeno a alta concentración [*non-rebreather masks*].

Comparando de nuevo los planes de cuidado de enfermería en el sistema español y el americano, encontramos que en mi unidad sí se tienen en cuenta algunos

de los componentes de la teoría de Virginia Henderson, como son la evaluación del sistema respiratorio o la vigilancia de la ingesta y excreción de nutrientes y líquidos. Sin embargo, en UCMP, más que por seguir una teoría enfermera, se evalúan estos parámetros por cómo afectan los resultados de los mismos a la patología del paciente ya que la mayoría de nuestros pacientes vienen por problemas cardíacos y ambas evaluaciones tienen repercusiones directas en dicho tipo de patologías. Nuestros planes de cuidados de enfermería en esta unidad se basan en los resultados tras evaluar el paciente por sistemas, dejando de lado el plano educacional y social.

Para cubrir los planos mencionados anteriormente, en UCMP existe el equipo administrador de casos [*case manager*], compuesto por dos trabajadores sociales y una enfermera. Este equipo se ocupa de la coordinación del proceso de alta, la petición del equipo necesario para volver al lugar de origen de modo seguro (muletas, sillas de ruedas, etc.), negociación con las aseguradoras médicas para estimar una factura final y educación sobre el proceso de la enfermedad entre otras muchas funciones.

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# FIGURAS

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Figura 1: Bomba de Infusión


Figura 2: Bomba de Infusión

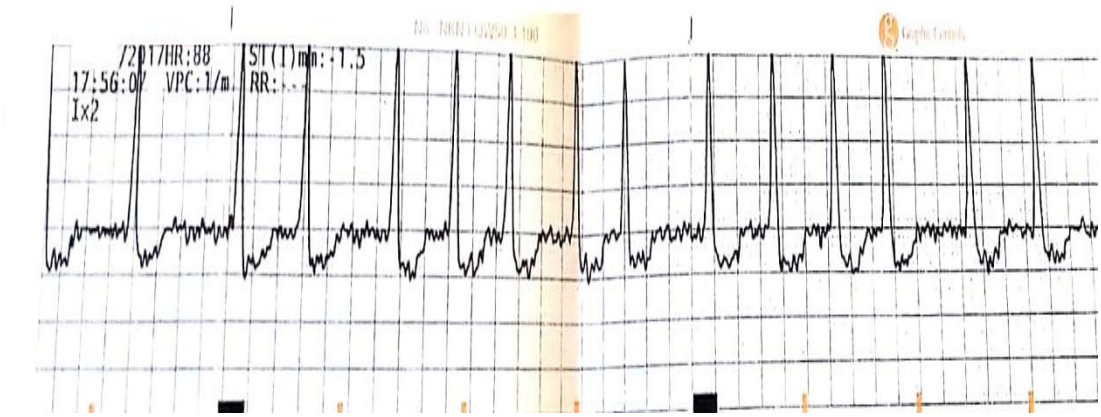



Figura 3. Tira de ritmo cardíaco

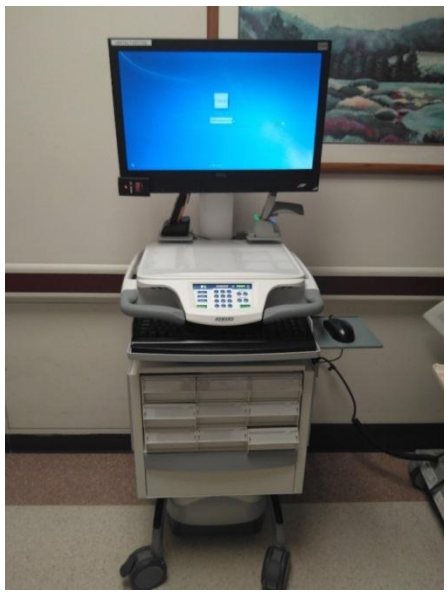


Figura 4. Ordenador individual por enfermera.

Figura 5. Esfigmomanómetro digital.

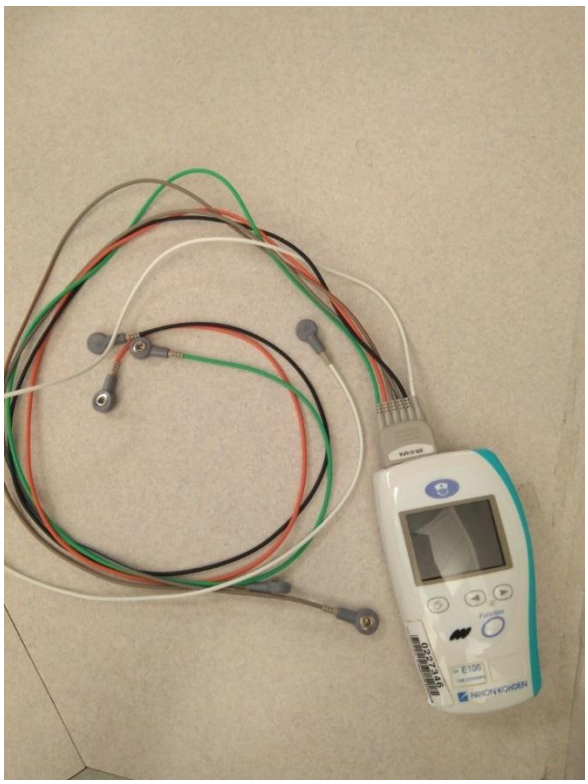


Figura 6. Monitor cardíaco.

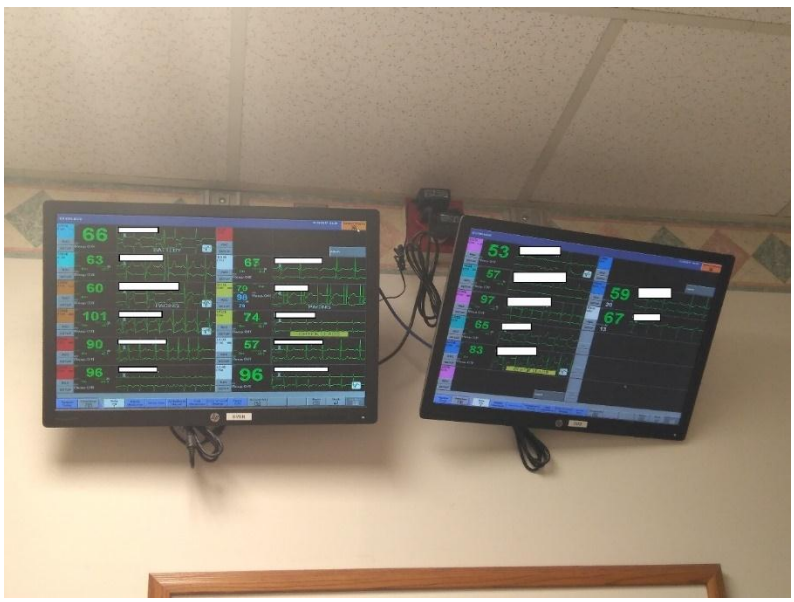



Figura 7. Pantallas para visualizar la monitorización cardíaca de nuestros pacientes.

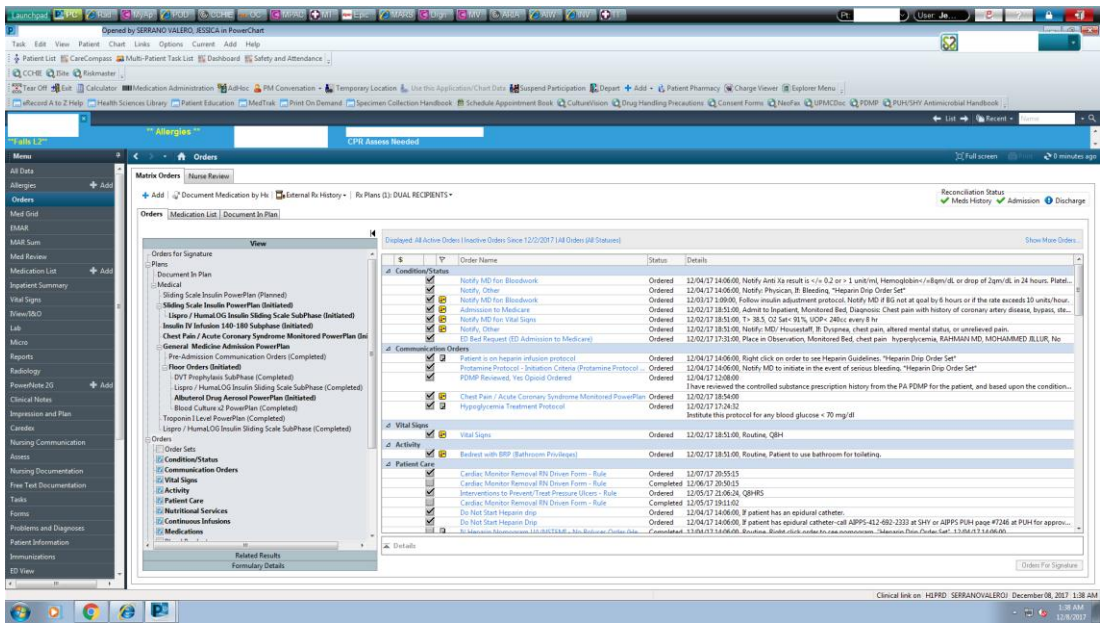


Figura 8. Ejemplo de órdenes introducidas en el ordenador.

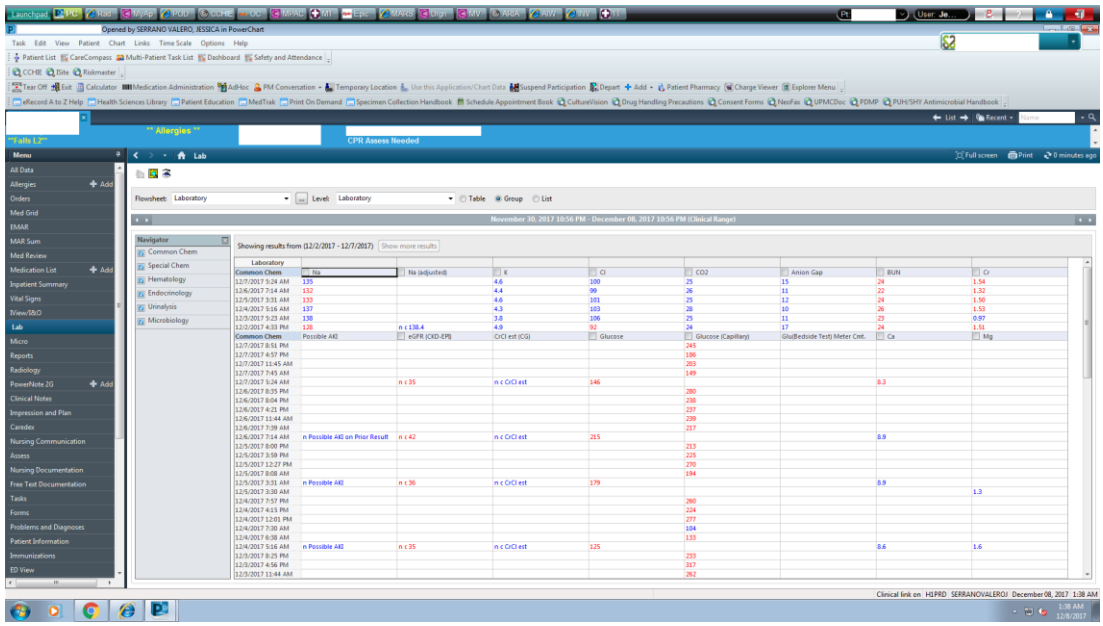


Figura 9. Ejemplo de resultados de laboratorio.

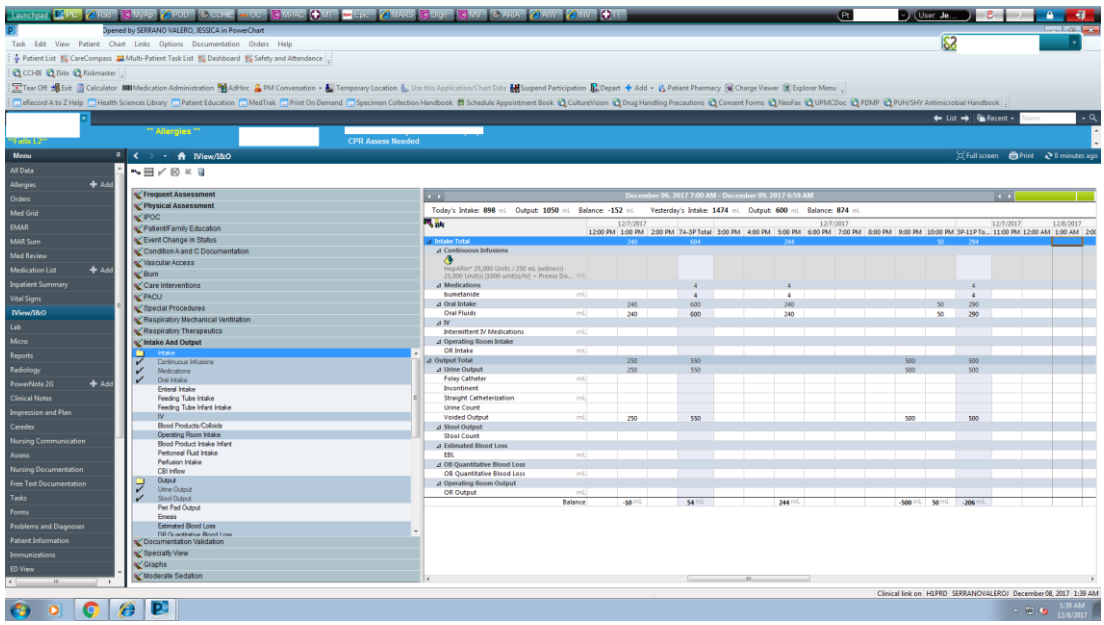


Figura 10. Ejemplo de balance hídrico.

## UPMC Altoona Report

| | |
|---|---|
| Name: | |
| Date: | |
| Ordered Procedure: | |
| Room #: | |
| PMH: | |
| NPO: | ☐ Yes ☐ No<br>When did they last eat? |
| Isolation: | ☐ Yes ☐ No<br>If yes, what type? |
| Diabetic | ☐ Yes ☐ No<br>Blood Sugar |
| Labs: | Hgb<br>Hct<br>K+ |
| Anticoagulants: | ☐ Yes ☐ No<br>If yes, please indicate the name: |
| Pacemaker/Defibrillator: | ☐ Yes ☐ No |
| Beta Blocker: | ☐ Yes ☐ No<br>Was it taken today? ☐ Yes ☐ No |
| Vital Signs: | BP<br>Pulse<br>Temp |
| O2: | ☐ Yes ☐ No<br>If yes, how many liters? |
| Prep: | Type<br>Result |
| BP cuff sent with Patient | ☐ Yes ☐ No |
| Patient have working IV site | ☐ Yes ☐ No |
| Pink Sheet Completed | ☐ Yes ☐ No |
| Antibiotic Ordered | ☐ Yes ☐ No |
| Can patient sign consent? | ☐ Yes ☐ No If no, is there a POA? Is POA paperwork on chart? |
| Mental Status | ☐ Alert & Oriented ☐ Other |
| Is family present? | ☐ Yes ☐ No |

Figura 11. Guión para dar información sobre un paciente al laboratorio cardíaco

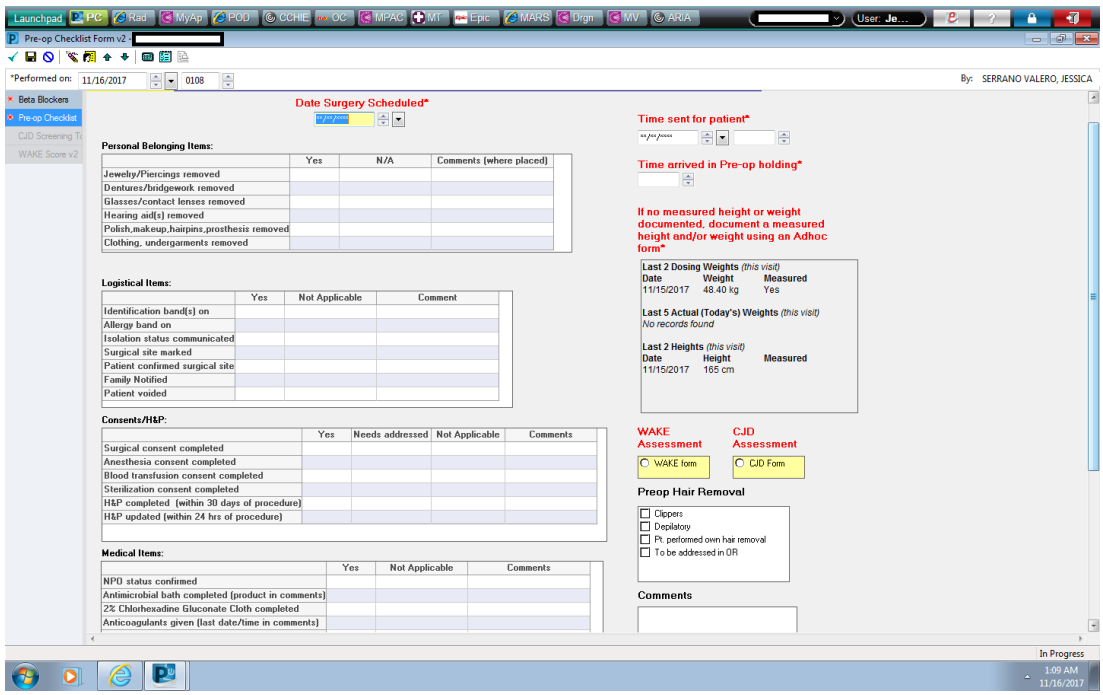



Figura 12. Formulario pre-procedimiento.

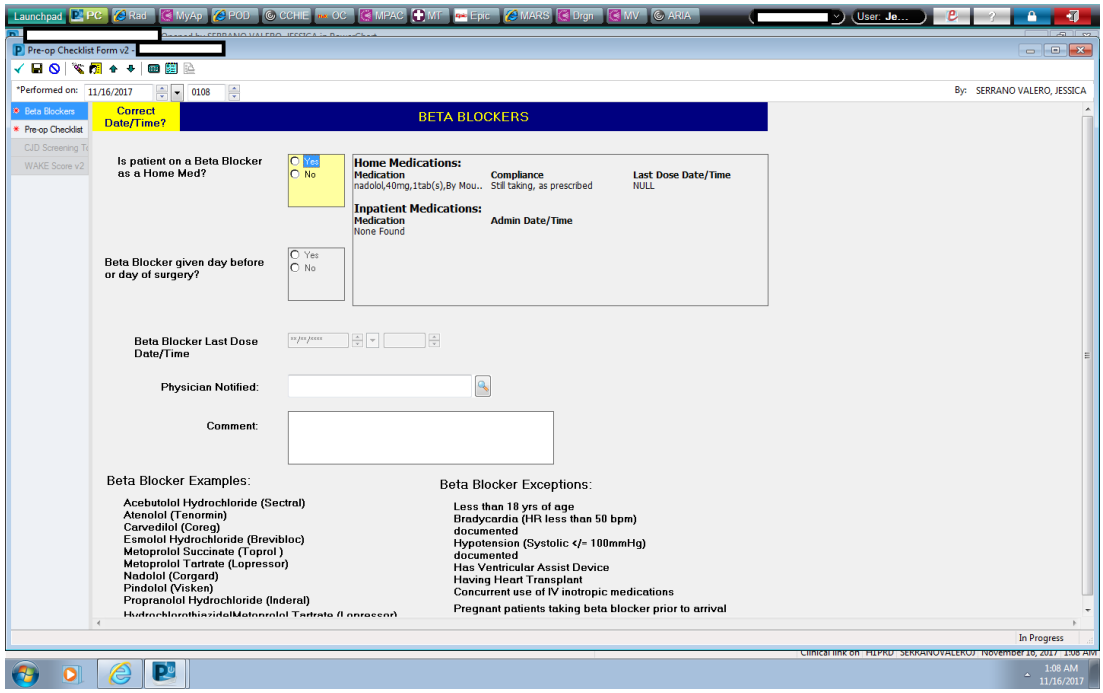



Figura 13 Formulario pre-procedimiento.


Figura14. Manguito de presión de esfigmómetro personal.

Figura 15. Dial-a-flow

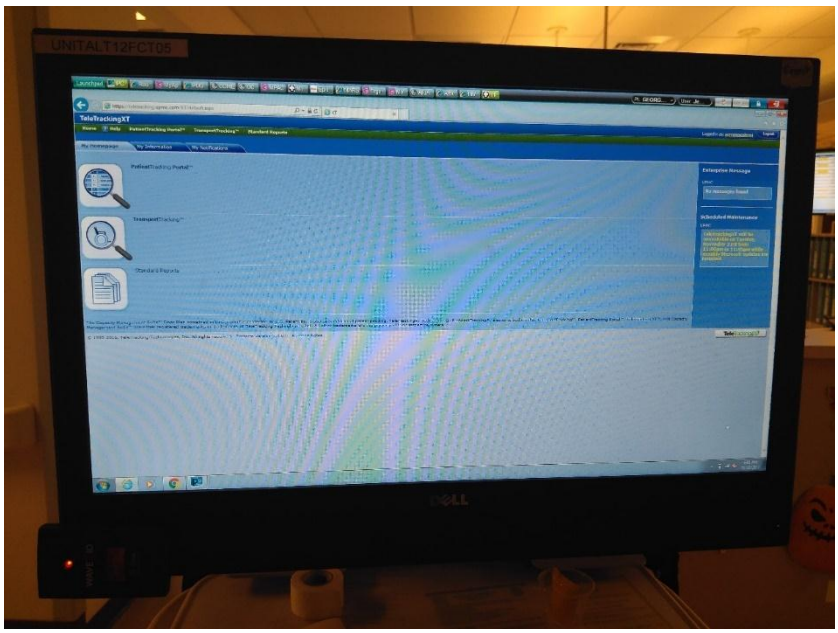



Figura 16. Aplicación Teletracking para el traslado de pacientes dentro del hospital.

Figura 17. Dispositivo de compresión radial Finale.

# ANEXOS

# ANEXO 1. CRITERIOS DE ADMISIÓN EN UCMP.

I 2.4

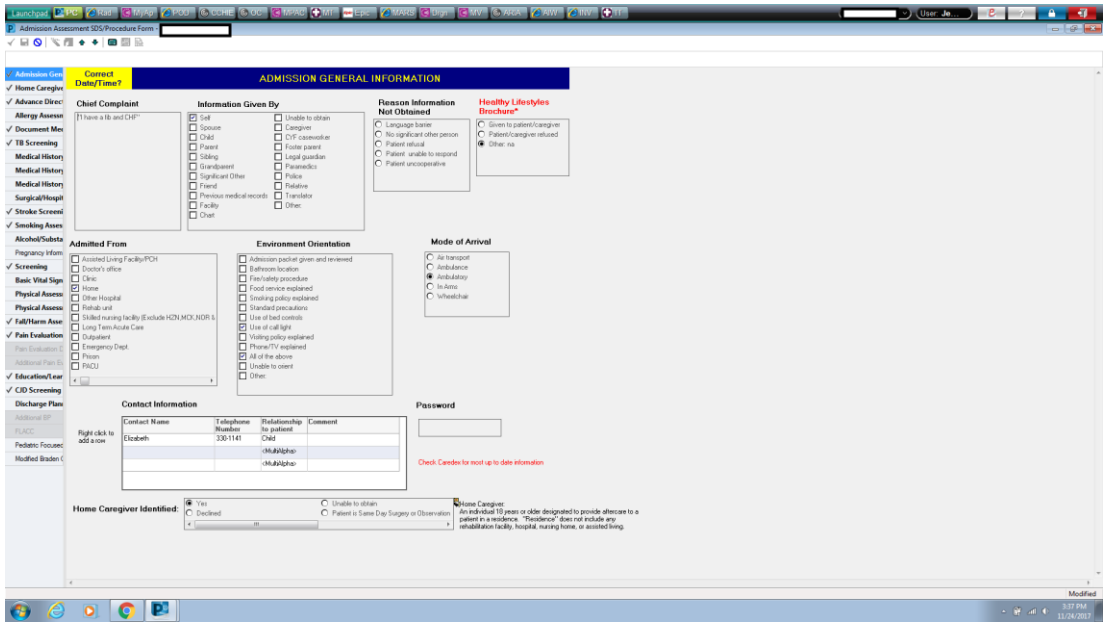
**UPMC ALTOONA**

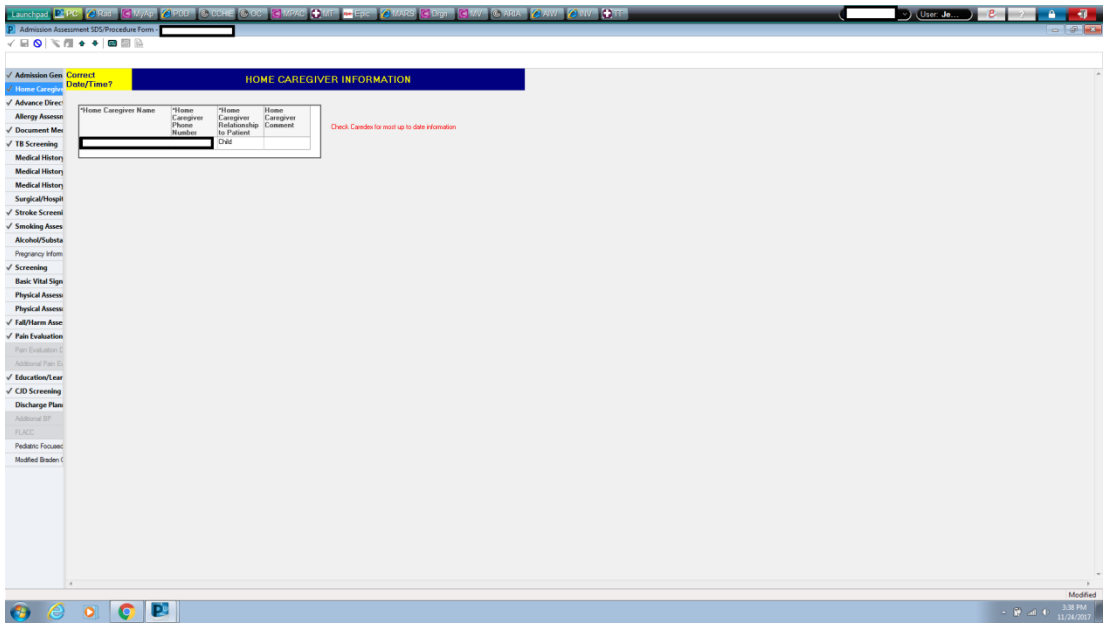
**STANDARD PRACTICE**

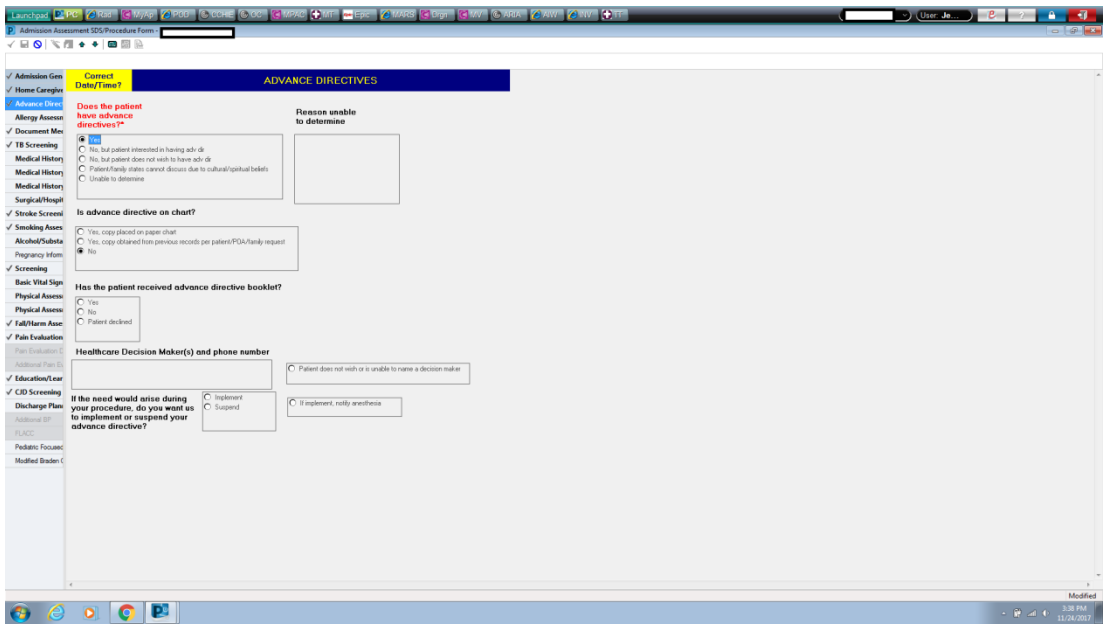
SUBJECT: ICU ADMISSION/DISCHARGE/TRIAGE POLICY (Cont'd)

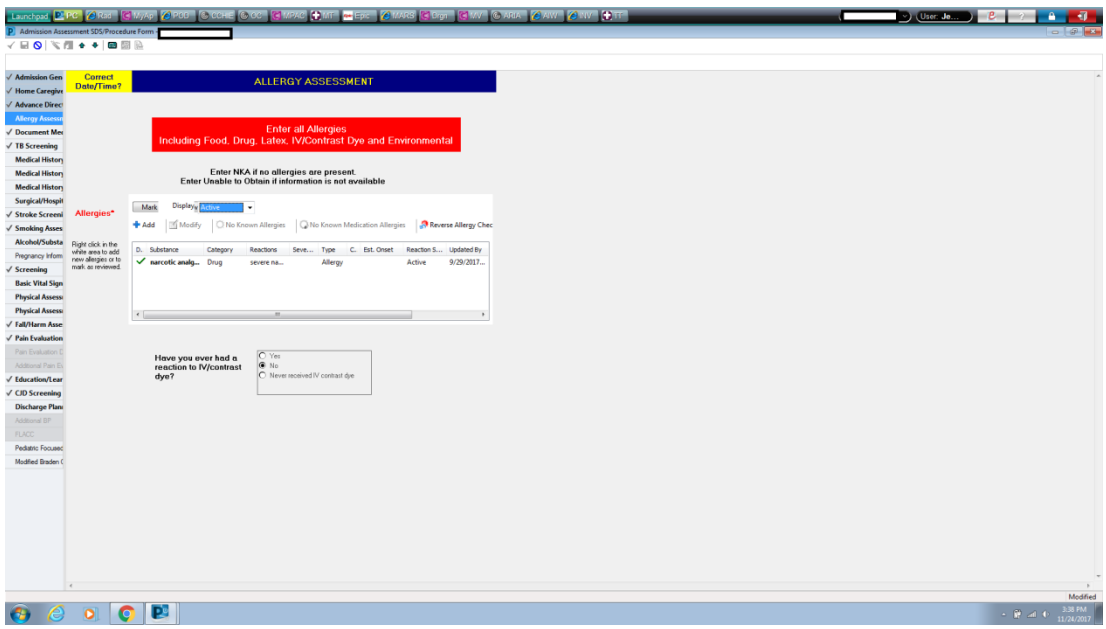
| Admission/Discharge Criteria | |
|---|---|
| **Intensive Care Patients** | **Progressive Care Patients** |
| | **Below dependant upon staff training and expertise** |
| **Card:** Arrhythmia, life threatening or repeated interventions | **Card:** Arrhythmia, non-life threatening |
| Shock/hypotension | Acute MI without complications |
| Acute MI with complication | R/O MI, until 2 sets of negative enzymes |
| Poorly controlled hypertension | CHF without shock |
| Unstable angina | Stable angina |
| Post arrest | Myocarditis |
| Aortic aneurysm dissection | Hypertension |
| Post thrombolytic therapy (Cardiac or Neuro) | **Pulm:** |
| Sepsis | NIPPV for chronic respiratory failure |
| **Pulm:** ARDS | Tracheostomy with or without ventilator (stable, chronic) |
| Fulminant pulmonary edema | Bronchodilator therapy q 2-3 hours |
| Hypoxemia on oxygen | Large A-a gradient, on oxygen, including high flow O2 |
| Respiratory distress / imminent intubation | **Neuro:** Stable GCS or neurologic exam |
| Acute respiratory failure with NPPV or ventilator | Lumbar catheter |
| **Neuro:** Unstable GCS or neurologic exam, coma | Neurologic exam required q 2-3 hours |
| Cerebral vasospasm / infarction/ hemorrhage | Intermittent seizures |
| Severe head trauma | ICP monitor to constant venting |
| Status epilepticus | **Post-Op:** Fluid resuscitation/titration required |
| Meningitis | Cardiac monitoring |
| Anticoagulation in unstable cerebral infarction pt | **GI:** Non-life threatening GI bleeding |
| Brain death, potential organ donor | Moderate pancreatitis |
| **GI:** Life threatening GI bleeding | Stable liver failure |
| Severe hepatic failure | **Renal:** New onset oliguria |
| Severe pancreatitis | Acute renal insufficiency |
| Esophageal perforation | **Endo:** Non-symptomatic electrolyte disorder |
| Ruptured / bleeding viscera (liver, bladder, uterus) | Hyperosmolar state - awake |
| **Renal:** New onset oliguria / anuria | Diabetic ketoacidosis |
| Acute renal failure / insufficiency | **Trauma:** Multiple injuries post ICU, stabilized |
| **Endo:** Symptomatic electrolyte disorder | Observation after non life-threatening injuries |
| Hyperosmolar coma | Spinal cord injury, stabilized |
| Diabetic ketoacidosis | **Misc:** Delirium Tremens |
| **Trauma:** Unstable multiple fractures | Burns <10% BSA |
| Severe chest, pelvis, abdominal trauma | Extensive wound management |
| Spinal cord injury | Drug overdose with potential deterioration |
| **Misc:** Bleeding / multiple blood products | **Intensity:** Vital signs q 2-4 hours |
| Unstable / evolving multiple organ system failure | CVP monitoring, including with noninvasive CO, ScVO2 |
| Burns >10% BSA | Continuous oxygen saturation monitoring |
| Necrotizing fascitis | Pulmonary care / suctioning Q2-3 hours |
| Drug overdose with antidote use and potential adverse drug reaction | Stable low dose dopamine, dobutamine, lidocaine, milrinone, amiodarone,vasopressin, NTG (for chest pain), nicardipine, diltiazem (for HR -may titrate), insulin protocol |
| Planned admission post-op | Arterial catheter |

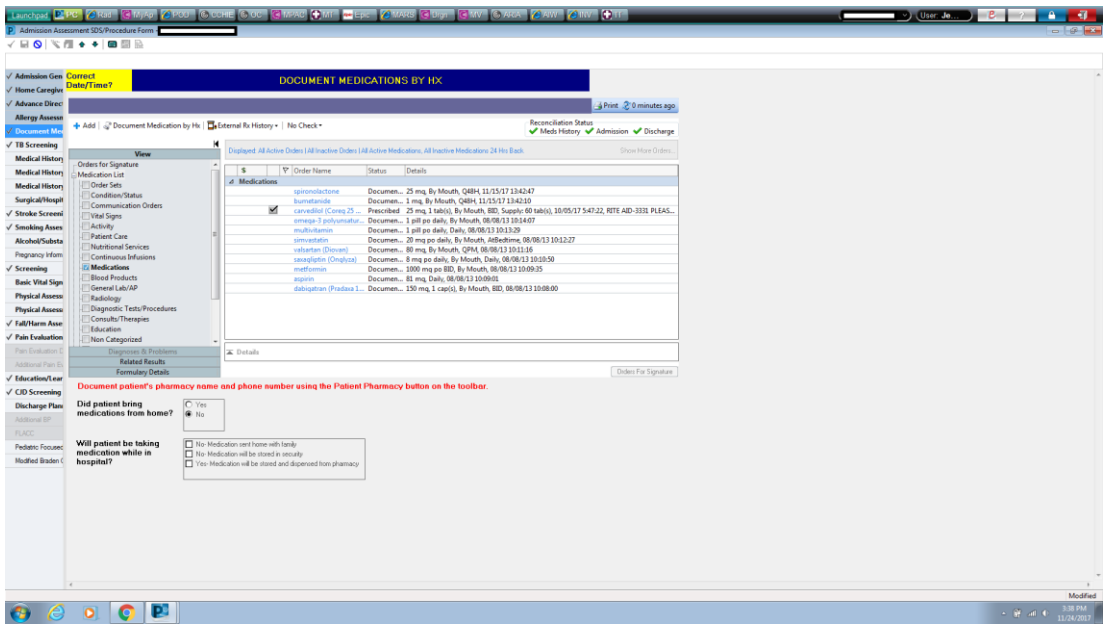
# ANEXO 2: FORMULARIO DE ADMISIÓN.

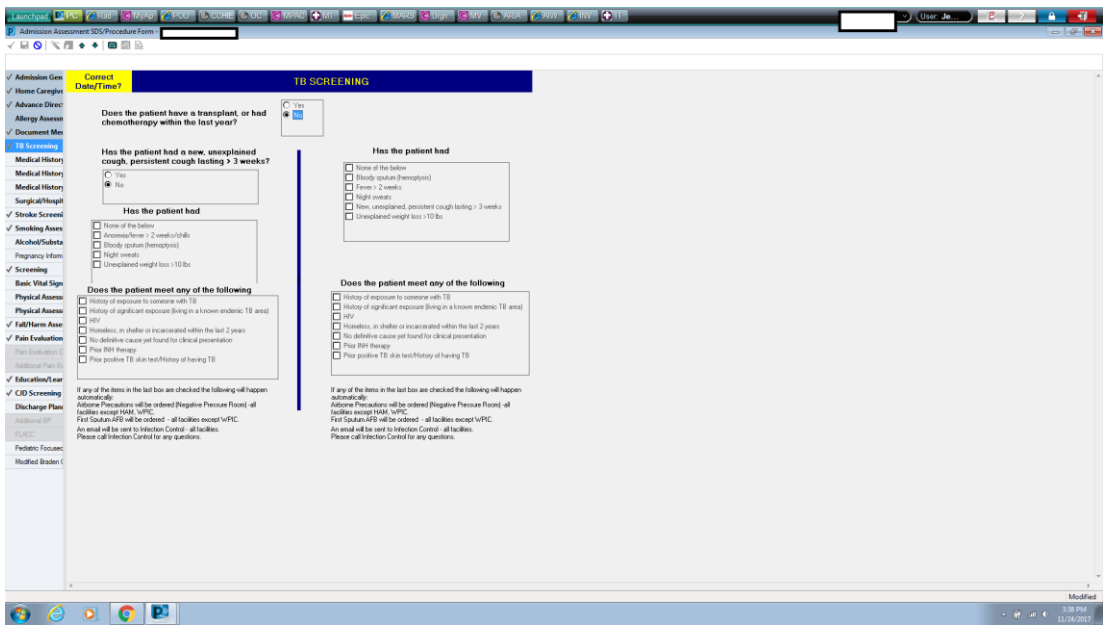


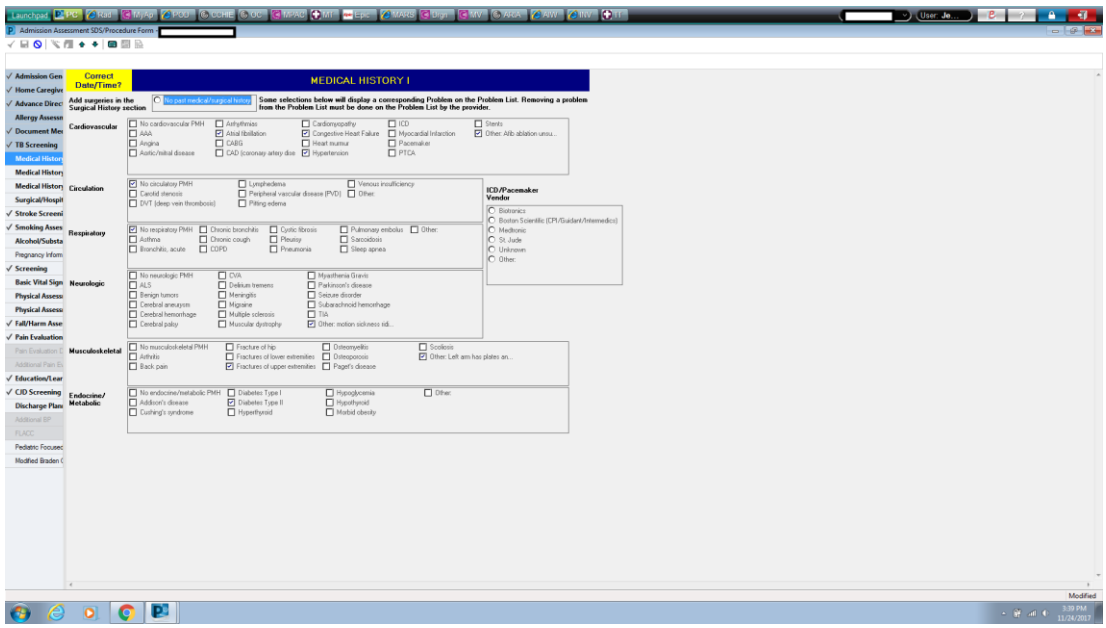



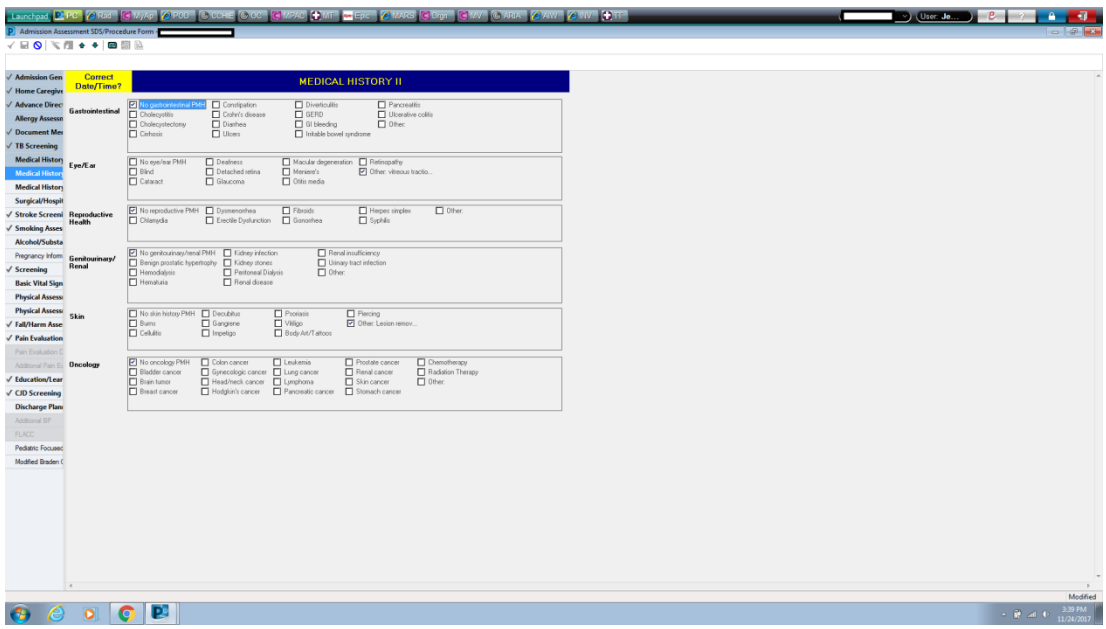

Correct Date/Time?
ADVANCE DIRECTIVES
Does the patient have advance directives?*
Reason unable to determine
Is advance directive on chart?
Has the patient received advance directive booklet?
Healthcare Decision Maker(s) and phone number
If the need would arise during your procedure, do you want us to implement or suspend your advance directive?

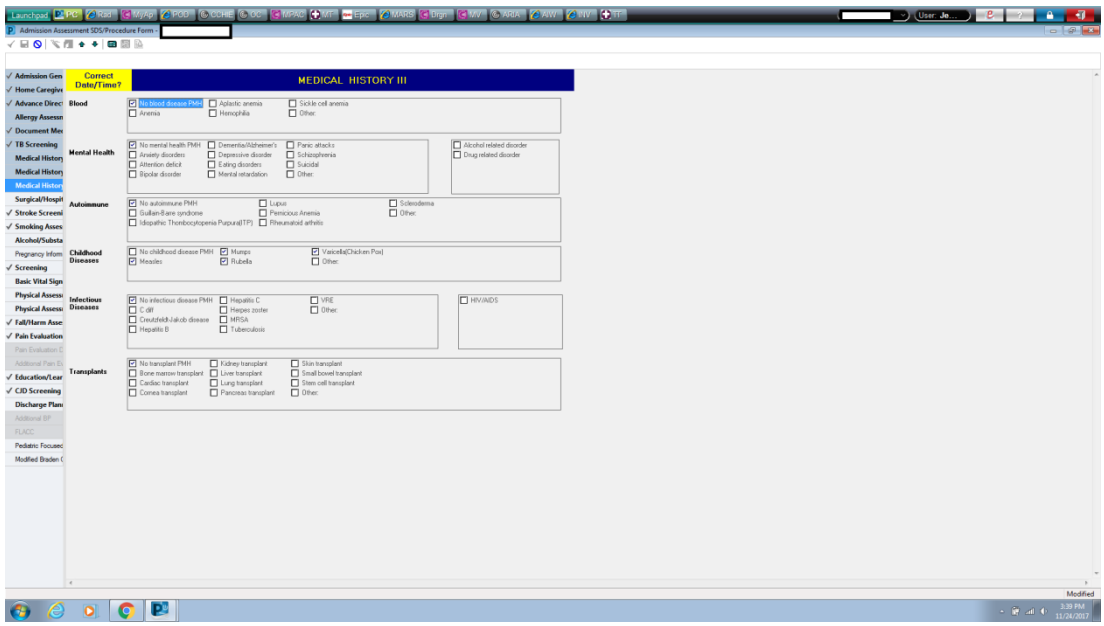

Correct Date/Time?
ALLERGY ASSESSMENT
Enter all Allergies
Including Food, Drug, Latex, IV/Contrast Dye and Environmental
Enter NKA if no allergies are present.
Enter Unable to Obtain if information is not available
Allergies*
Have you ever had a reaction to IV/contrast dye?

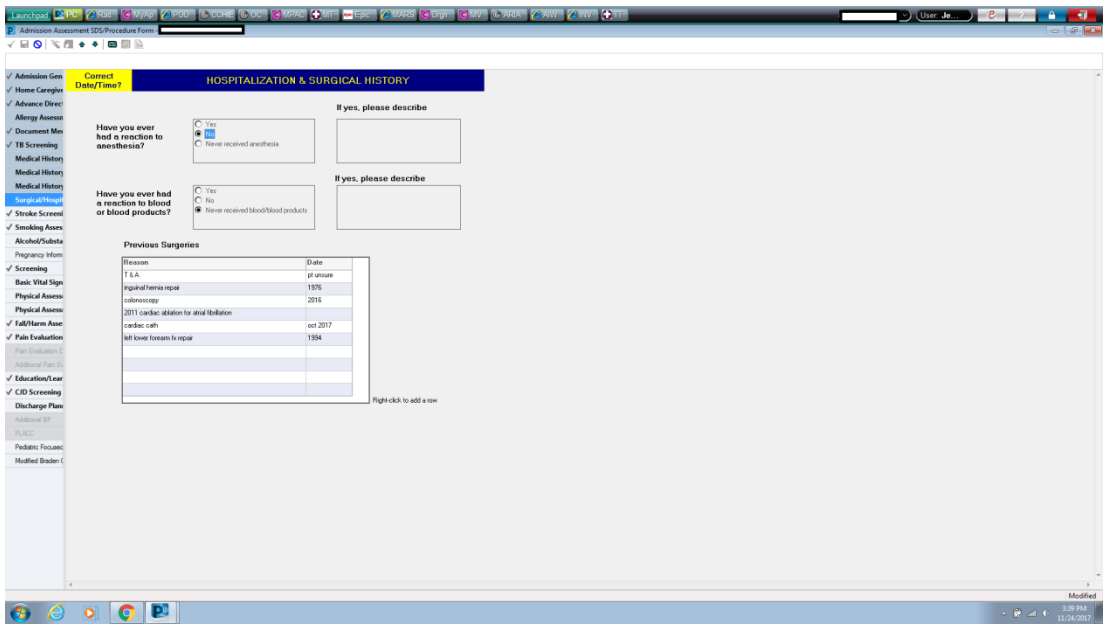

DOCUMENT MEDICATIONS BY HX
Correct Date/Time?
Document patient's pharmacy name and phone number using the Patient Pharmacy button on the toolbar.
Did patient bring medications from home?
Will patient be taking medication while in hospital?

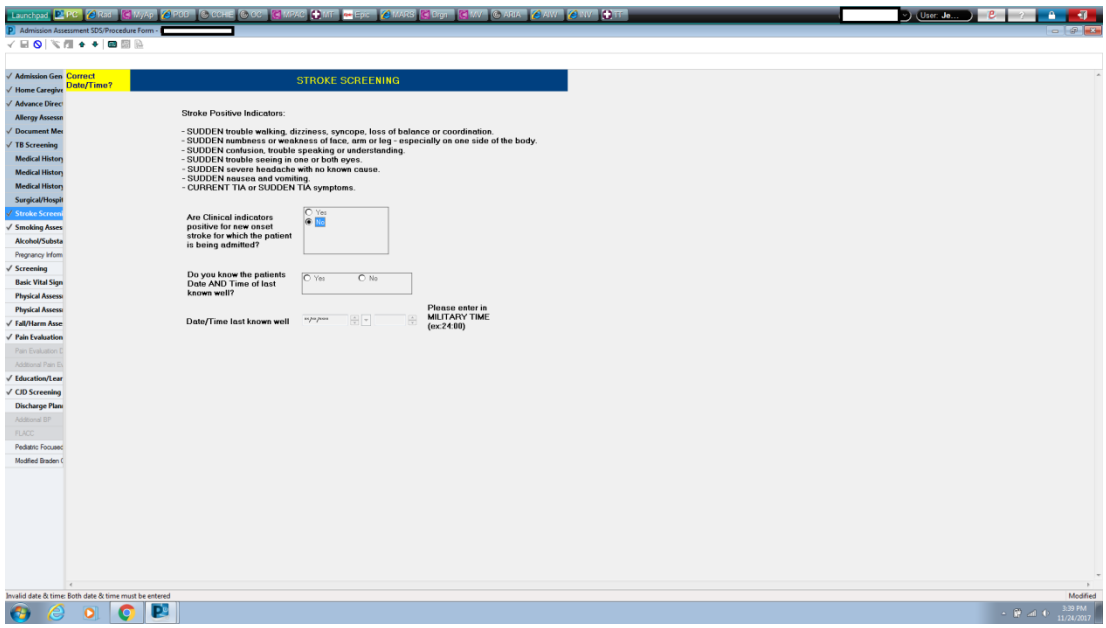

TB SCREENING
Correct Date/Time?
Does the patient have a transplant, or had chemotherapy within the last year?
Has the patient had a new, unexplained cough, persistent cough lasting > 3 weeks?
Has the patient had
Does the patient meet any of the following
Has the patient had
Does the patient meet any of the following

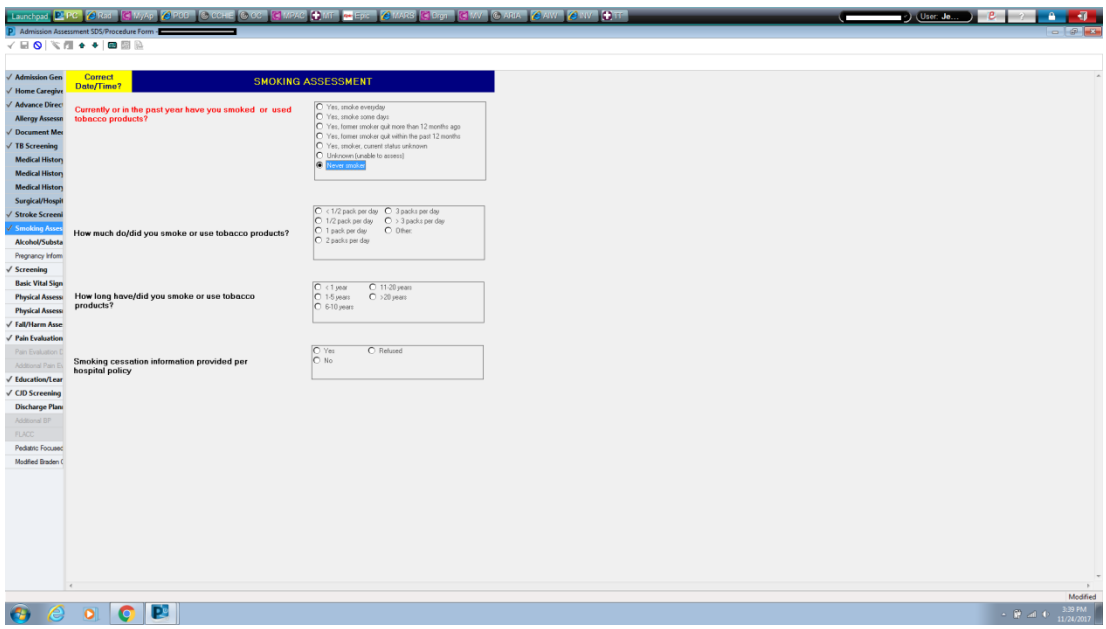

MEDICAL HISTORY I
Correct Date/Time?
Add surgeries in the Surgical History section
No past medical/surgical history
Some selections below will display a corresponding Problem on the Problem List. Removing a problem from the Problem List must be done on the Problem List by the provider.
Cardiovascular
Circulation
Respiratory
Neurologic
Musculoskeletal
Endocrine/ Metabolic
ICD/Pacemaker Vendor

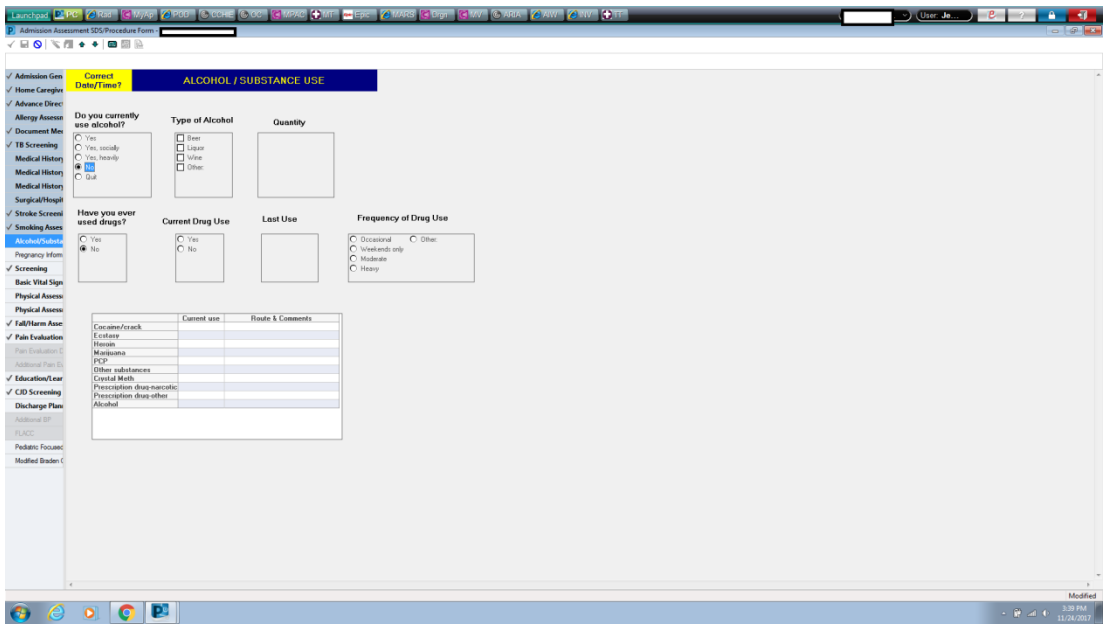

MEDICAL HISTORY II
Correct Date/Time?
Gastrointestinal
Eye/Ear
Reproductive Health
Genitourinary/ Renal
Skin
Oncology

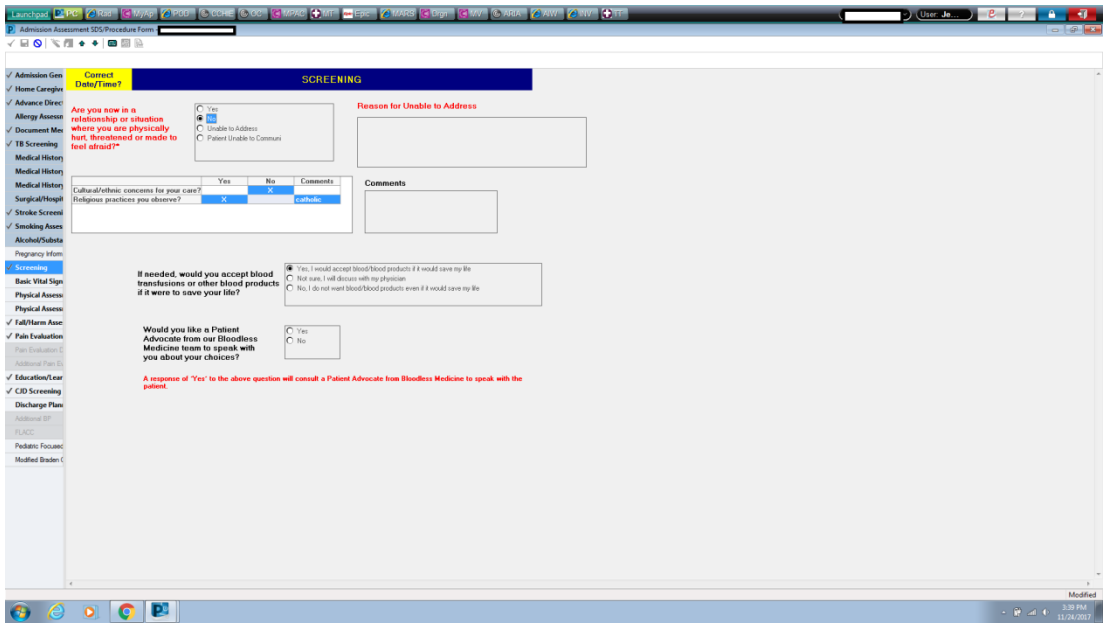

MEDICAL HISTORY III
Correct Date/Time?
Blood
Mental Health
Autoimmune
Childhood Diseases
Infectious Diseases
Transplants

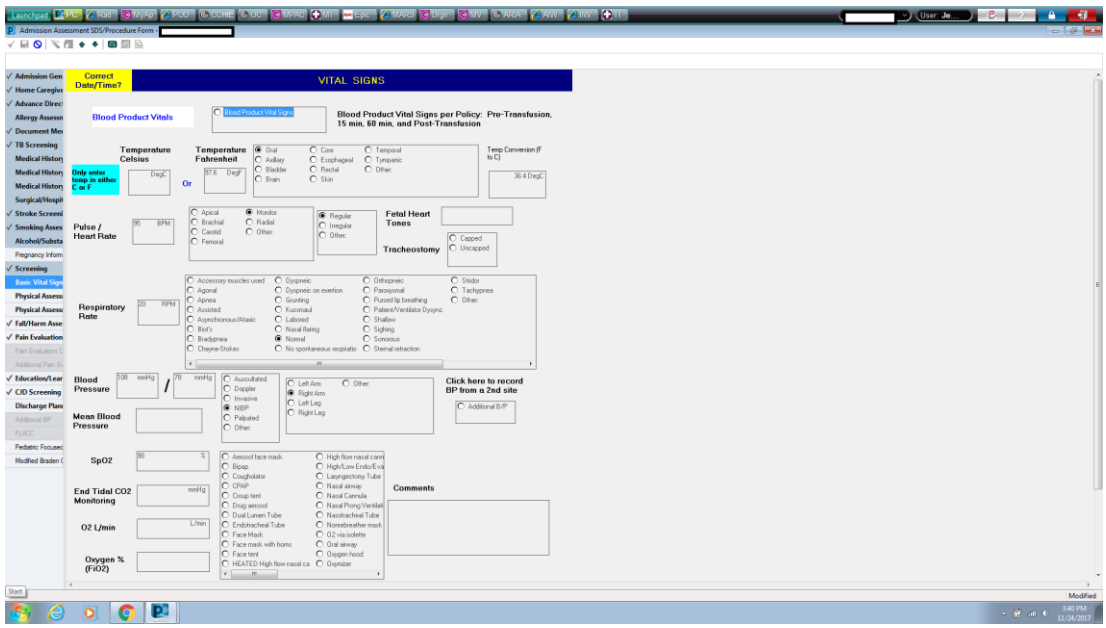

HOSPITALIZATION & SURGICAL HISTORY
Correct Date/Time?
Have you ever had a reaction to anesthesia?
If yes, please describe
Have you ever had a reaction to blood or blood products?
If yes, please describe
Previous Surgeries
Reason
Date
Right-click to add a row

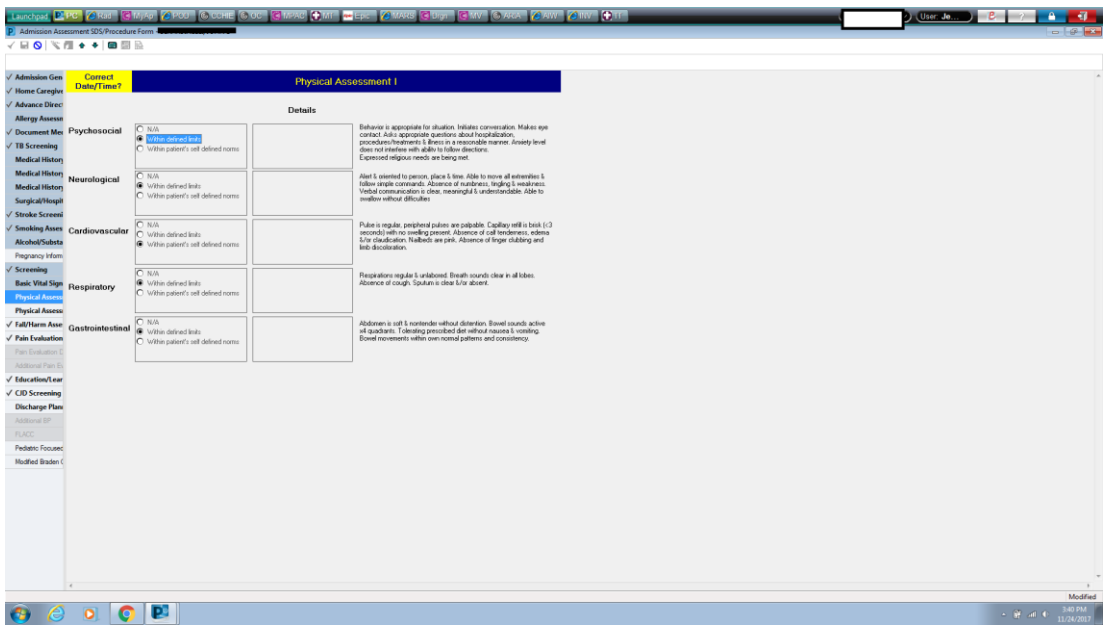

STROKE SCREENING
Correct Date/Time?
Stroke Positive Indicators:
- SUDDEN trouble walking, dizziness, syncope, loss of balance or coordination.
- SUDDEN numbness or weakness of face, arm or leg - especially on one side of the body.
- SUDDEN confusion, trouble speaking or understanding.
- SUDDEN trouble seeing in one or both eyes.
- SUDDEN severe headache with no known cause.
- SUDDEN nausea and vomiting.
- CURRENT TIA or SUDDEN TIA symptoms.
Are Clinical indicators positive for new onset stroke for which the patient is being admitted?
Yes
No
Do you know the patients Date AND Time of last known well?
Yes
No
Date/Time last known well
Please enter in MILITARY TIME (ex:24:00)
Invalid date & time: Both date & time must be entered
Modified

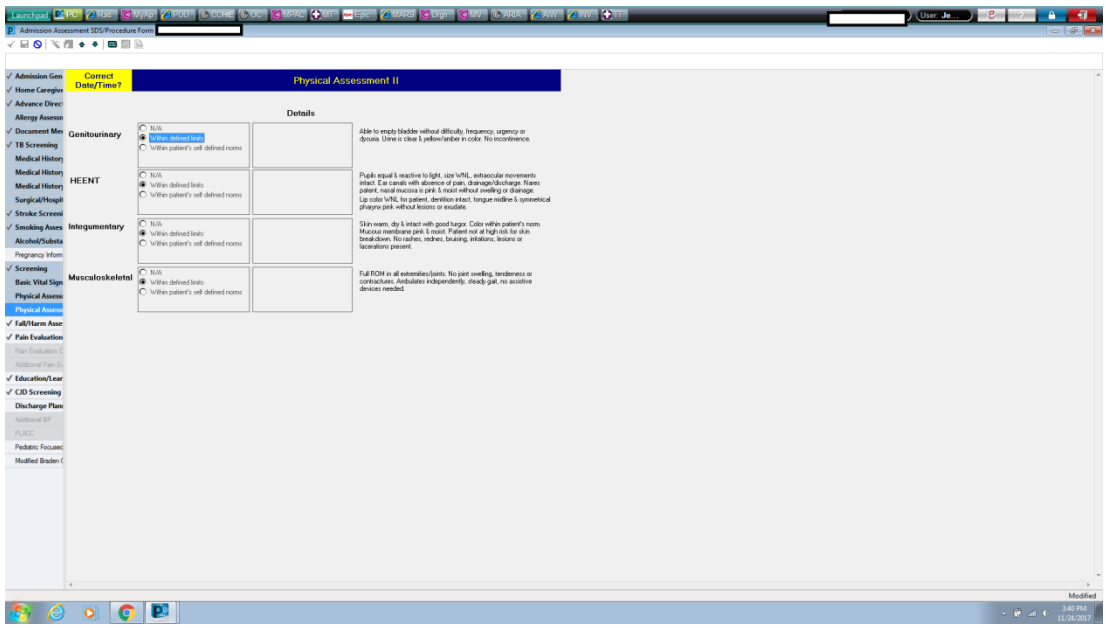

SMOKING ASSESSMENT
Correct Date/Time?
Currently or in the past year have you smoked or used tobacco products?
Yes, smoke everyday
Yes, smoke some days
Yes, former smoker quit more than 12 months ago
Yes, former smoker quit within the past 12 months
Yes, smoker, current status unknown
Unknown (unable to assess)
Never smoke
How much do/did you smoke or use tobacco products?
< 1/2 pack per day
1/2 pack per day
1 pack per day
2 packs per day
3 packs per day
> 3 packs per day
Other
How long have/did you smoke or use tobacco products?
< 1 year
1-5 years
6-10 years
11-20 years
>20 years
Smoking cessation information provided per hospital policy
Yes
No
Refused
Modified

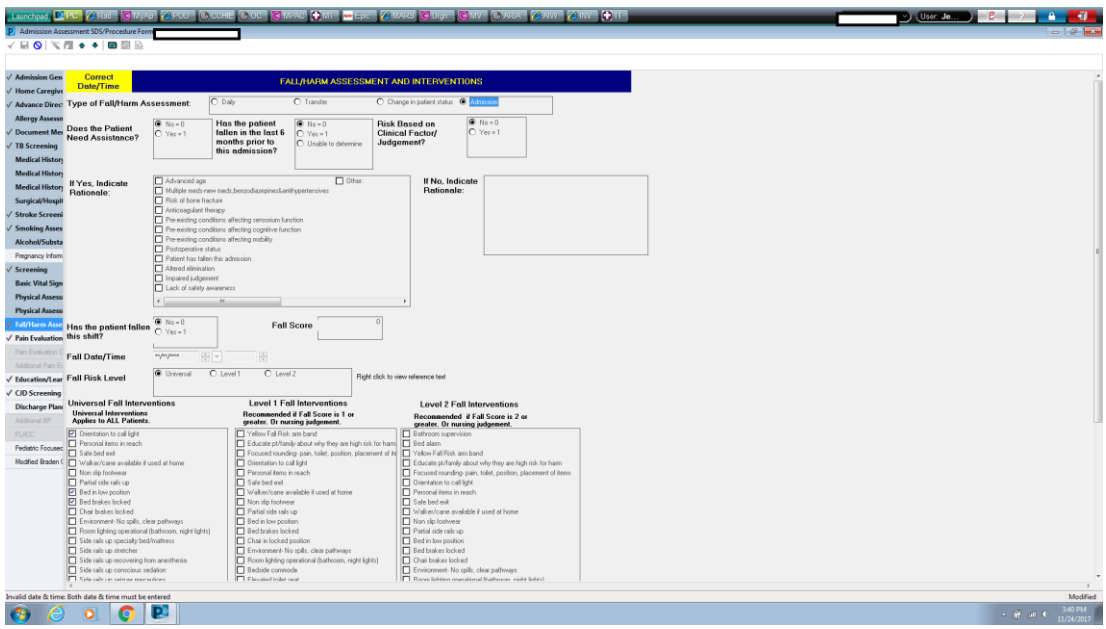

Correct Date/Time?
ALCOHOL / SUBSTANCE USE
Do you currently use alcohol?
Type of Alcohol
Quantity
Have you ever used drugs?
Current Drug Use
Last Use
Frequency of Drug Use
Current use
Route & Comments
Cocaine/crack
Ecstasy
Heroin
Marijuana
PCP
Other substances
Crystal Meth
Prescription drug-narcotic
Prescription drug-other
Alcohol

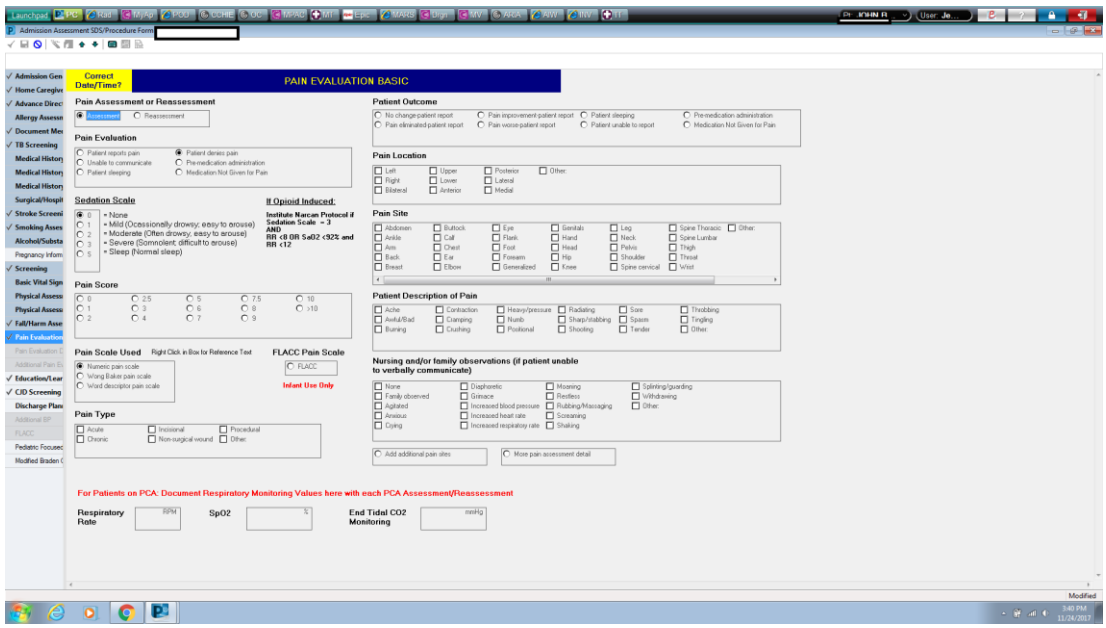

Correct Date/Time?
SCREENING
Are you now in a relationship or situation where you are physically hurt, threatened or made to feel afraid?*
Reason for Unable to Address
Yes
No
Unable to Address
Patient Unable to Communi
Yes
No
Comments
Cultural/ethnic concerns for your care?
Religious practices you observe?
catholic
Comments
If needed, would you accept blood transfusions or other blood products if it were to save your life?
Yes, I would accept blood/blood products if it would save my life
Not sure, I will discuss with my physician
No, I do not want blood/blood products even if it would save my life
Would you like a Patient Advocate from our Bloodless Medicine team to speak with you about your choices?
Yes
No
A response of 'Yes' to the above question will consult a Patient Advocate from Bloodless Medicine to speak with the patient.

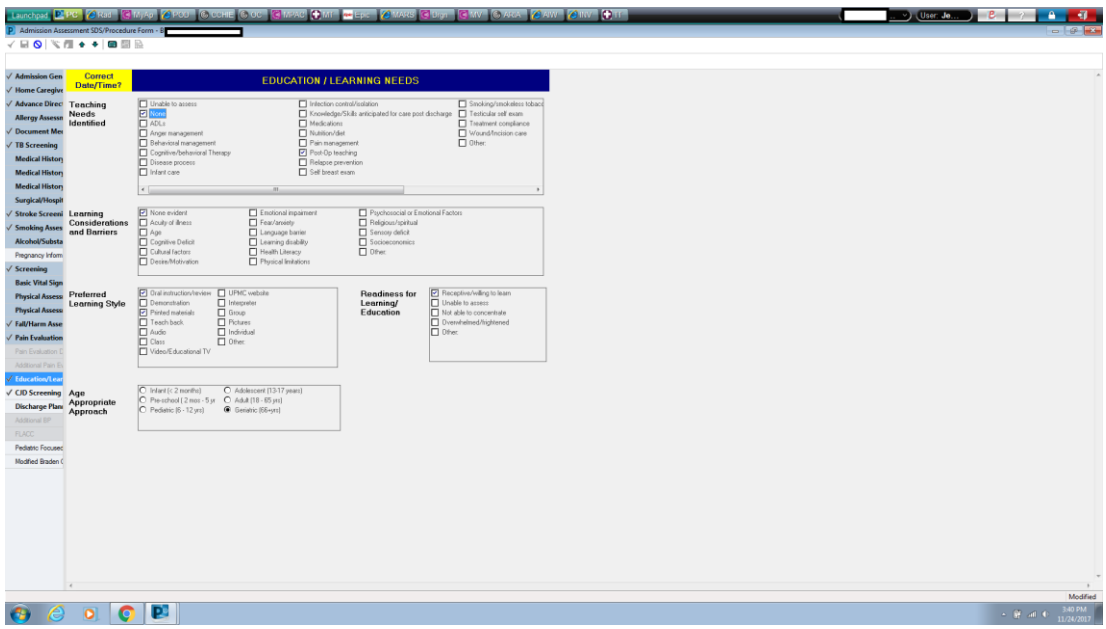

VITAL SIGNS
Correct Date/Time?
Blood Product Vitals
Blood Product Vital Signs
Blood Product Vital Signs per Policy: Pre-Transfusion, 15 min, 60 min, and Post-Transfusion
Temperature Celsius
Temperature Fahrenheit
Temp Conversion (F to C)
Only enter temp in either C or F
Or
Pulse / Heart Rate
Fetal Heart Tones
Tracheostomy
Capped
Uncapped
Respiratory Rate
Blood Pressure
Click here to record BP from a 2nd site
Additional B/P
Mean Blood Pressure
SpO2
End Tidal CO2 Monitoring
O2 L/min
Oxygen % (FiO2)
Comments

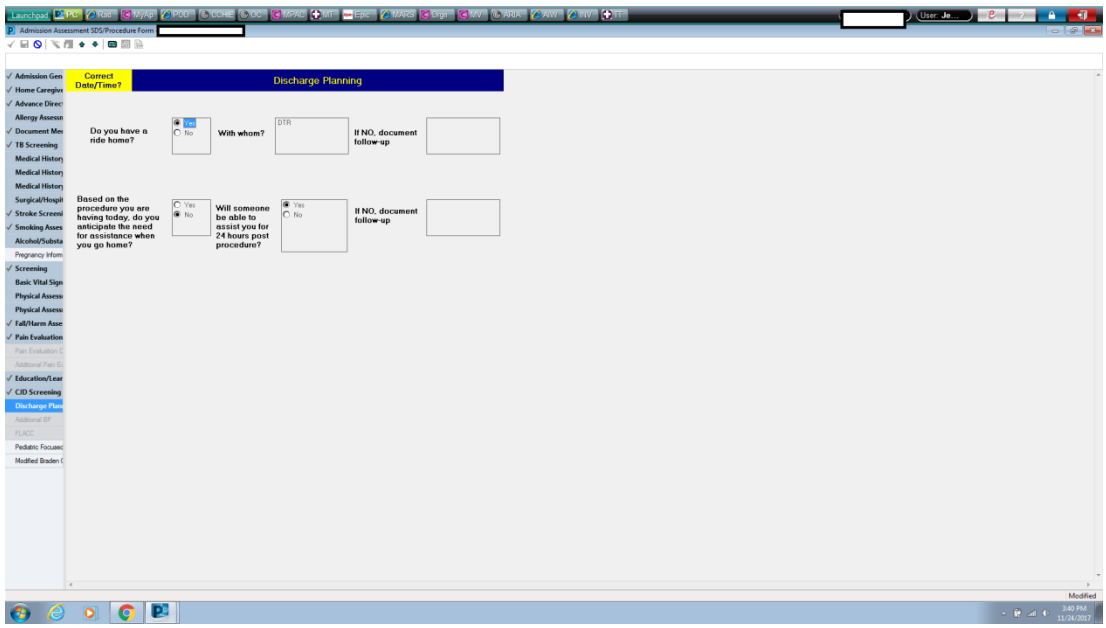

Physical Assessment I
Correct Date/Time?
Details
Psychosocial
Neurological
Cardiovascular
Respiratory
Gastrointestinal
N/A
Within defined limits
Within patient's self defined norms


Launchpad
Admission Assessment SDS/Procedure Form
Correct Date/Time?
Physical Assessment II
Details
Genitourinary
HEENT
Integumentary
Musculoskeletal
N/A
Within defined limits
Within patient's self defined norms
Able to empty bladder without difficulty, frequency, urgency or dysuria. Urine is clear & yellow/amber in color. No incontinence.
Pupils equal & reactive to light, size WNL, extraocular movements intact. Ear canals with absence of pain, drainage/discharge. Nares patent, nasal mucosa is pink & moist without swelling or drainage. Lip color WNL for patient, dentition intact, tongue midline & symmetrical pharynx pink without lesions or exudate.
Skin warm, dry & intact with good turgor. Color within patient's norm. Mucous membrane pink & moist. Patient not at high risk for skin breakdown. No rashes, rednes, bruising, irritations, lesions or lacerations present.
Full ROM in all extremities/joints. No joint swelling, tenderness or contractures. Ambulates independently, steady gait, no assistive devices needed.
Modified


Launchpad
Admission Assessment SDS/Procedure Form
Correct Date/Time
FALL/HARM ASSESSMENT AND INTERVENTIONS
Type of Fall/Harm Assessment:
Daily
Transfer
Change in patient status
Admission
Does the Patient Need Assistance?
Has the patient fallen in the last 6 months prior to this admission?
Risk Based on Clinical Factor/ Judgement?
If Yes, Indicate Rationale:
If No, Indicate Rationale:
Has the patient fallen this shift?
Fall Score
Fall Date/Time
Fall Risk Level
Universal
Level 1
Level 2
Right click to view reference text
Universal Fall Interventions
Universal Interventions Applies to ALL Patients.
Level 1 Fall Interventions
Recommended if Fall Score is 1 or greater. Or nursing judgement.
Level 2 Fall Interventions
Recommended if Fall Score is 2 or greater. Or nursing judgement.
Invalid date & time: Both date & time must be entered
Modified


Correct Date/Time?
PAIN EVALUATION BASIC
Pain Assessment or Reassessment
Pain Evaluation
Sedation Scale
If Opioid Induced:
Pain Score
Pain Scale Used
FLACC Pain Scale
Pain Type
Patient Outcome
Pain Location
Pain Site
Patient Description of Pain
Nursing and/or family observations (if patient unable to verbally communicate)
For Patients on PCA: Document Respiratory Monitoring Values here with each PCA Assessment/Reassessment
Respiratory Rate
SpO2
End Tidal CO2 Monitoring


Correct Date/Time?
EDUCATION / LEARNING NEEDS
Teaching Needs Identified
Learning Considerations and Barriers
Preferred Learning Style
Readiness for Learning/ Education
Age Appropriate Approach


Launchpad
Admission Assessment SDS/Procedure Form
Admission Gen
Home Caregiv
Advance Direc
Allergy Assess
Document Me
TB Screening
Medical History
Medical History
Medical History
Surgical/Hospit
Stroke Screeni
Smoking Asses
Alcohol/Substa
Pregnancy Inform
Screening
Basic Vital Sign
Physical Assess
Physical Assess
Fall/Harm Asse
Pain Evaluation
Pain Evaluation D
Additional Pain Ev
Education/Lear
CJD Screening
Discharge Plan
Additional BP
PLACE
Pediatric Focused
Modified Braden
Correct Date/Time?
Discharge Planning
Do you have a ride home?
Yes
No
With whom?
DTR
If NO, document follow-up
Based on the procedure you are having today, do you anticipate the need for assistance when you go home?
Yes
No
Will someone be able to assist you for 24 hours post procedure?
Yes
No
If NO, document follow-up
Modified
3:40 PM
11/24/2017

## ANEXO 3. CONSENTIMIENTO INFORMADO PARA CATETERIZACIÓN CORONARIA.

# UPMC Altoona

**CONSENT FOR LEFT AND RIGHT HEART CATHETERIZATION WITH POSSIBLE ANGIOPLASTY AND CORONARY ARTERY STENTING**

I,_____, have been asked to carefully read all of the information
(Printed name of patient or substitute decision-maker)
contained in this consent form and to consent to the procedure described below on behalf of _____.
(Printed name of patient)

I have been told that I should ask questions about anything that I do not understand. (If the decision-maker is not the patient, references to "I," "my" or "me" should be read as if referring to "the patient," when applicable.).

☐ My doctor suspects that I have a problem with the blood supply to my heart muscle. The doctor has suggested that I have a left heart catheterization to determine if a problem exists. Should the blood supply to my heart muscle be blocked it may be possible to open one or more of these blocked areas by a procedure called percutaneous coronary angioplasty (PTCA), which means opening the artery by inflating a balloon inside the artery - and stenting (a stent is a small wire mesh tube that helps to keep the artery open). PTCA and stenting will be done at this time if in my doctor's professional judgment, the circulation to my heart muscle may be improved by the procedure. Additionally, based upon the medical findings during this procedure, my doctor may gain important diagnostic information by measuring the pressures within the right side of my heart and pulmonary artery. This is done by using a special catheter and pressure sensitive monitor.

☐ I have had a left heart catheterization recently and been diagnosed with a blockage (s) in the blood flow to my heart muscle. I understand that the blockage (s) may be able to be treated with PTCA and stenting. I understand that it is necessary to do an additional left heart catheterization to confirm the location, amount and significance of the blockage to the blood supply of my heart muscle and to reach the blockage with the necessary catheters, balloons and stent-deploying instruments to perform a PTCA and stenting.

☐ My doctor has determined that information regarding the performance of my heart muscle and the pressures within the heart and pulmonary arteries will be helpful in managing my condition. Therefore a right heart catheterization is planned.

**In addition to the right heart catheterization the additional procedure indicated below is planned.**

☐ Exercise Testing: During the procedure and while special catheters are in place to measure pressures within the right side of my heart and pulmonary arteries I will be asked to exercise using a device placed on the exam table. This will provide an opportunity for the doctor to evaluate my heart muscle's response to the stress of exercise. I may be asked to exercise for different lengths of time or at different resistances to complete the evaluation.

☐ Biopsy: Small pieces of heart muscle are taken from several sites within the heart to examine under a microscope.

**DESCRIPTION OF THE PROCEDURE**

1. **Local anesthesia and sedation.** I will be given a local anesthetic to numb the tissues of my groin, arm or neck. A large tube (sheath) will be placed in a large artery or vein in the numbed area.

   Local anesthetics such as Xylocaine may be associated with side effects or adverse reactions. If side effects or adverse reactions occur, additional medical treatment may be necessary. I have been instructed to tell the doctor if I have had local anesthetics in the past and if I have experienced an allergic reaction or side effect to a local anesthetic.

   Moderate sedation (the administration of drugs to cause decreased level of consciousness) may also be provided intravenously (through my veins) to help complete the left heart catheterization, PTCA and stenting with greater ease and comfort. I may still be able to follow verbal commands, but will not be fully aware of my surroundings. I have been told that the risks of moderate sedation include hypoventilation (inadequate breathing), respiratory arrest (lack of breathing) and hypotension (low blood pressure). I will be monitored closely throughout the procedure by staff trained in moderate (conscious) sedation.

Anxiolysis (Minimal Sedation) is a drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilator and cardiovascular functions are unaffected.

2. **Insertion of the catheters (Left Heart Catheterization):** Following the placement of a sheath, a smaller hollow tube (catheter) will then be passed through the sheath and threaded through other arteries to reach my aorta (the main artery that transports blood from my heart). A small opening near the beginning of the aorta (aortic sinus) will then be entered. This opening leads to the branching arteries that supply blood to my heart muscle.

   A dye will be injected to outline the arteries of my heart muscle. When the dye is injected the doctor can see the movement of the dye on a monitor. A film is also made that my doctor can view later. The movement of the dye and the way it fills the vessels will show the doctor the pattern of arteries through which my heart muscle receives blood supply. Any blockage to blood flow and the size, location and number of arteries that are blocked and how these blockages affect the overall blood supply to my heart muscle can be determined. If in the professional judgment of my doctor it is medically necessary and appropriate - a PTCA will be performed and a stent placed in one or more blocked areas of these arteries. The left heart catheter will be removed. A catheter with an inflatable balloon will be passed through the sheath in my groin, arm or neck and into the artery (s) at the blocked area. The balloon will be inflated to compress the blockage against the artery wall. The balloon will then be deflated and removed through the sheath. A catheter that can deploy (place) and expand a stent will then be passed through the sheath to where the blockage was compressed against the artery wall. The stent will be placed and enlarged to the width of the portion of the artery that was blocked. Sometimes a second or third stent is placed to fully eliminate the blockage. My physician may also use instruments other than balloons to open blockages. These include balloons with blades (Cutting Balloon), drills (Rotablator) and lasers. After the stents are placed an ultrasound catheter (emits sound waves) may be used to confirm satisfactory expansion and positioning of the stent.

3. **Insertion of catheters (Right heart catheterization):** Following the placement of a sheath, a smaller hollow tube (catheter) will then be passed through the sheath and threaded through other veins to reach the right side of my heart and my pulmonary arteries. Measurements of the pressures within my right upper heart chamber (right atrium), my right lower heart chamber (ventricle) and my pulmonary artery will be completed. Cold water may be injected to measure cardiac output. If checked above I will be asked to perform exercise under the direction of my doctor and additional measurements will be taken. If a biopsy is planned a small piece of heart muscle will be pinched off the inside of the heart.

4. **Post-Procedure Care and Recovery.** After the procedure, the sheath will be removed. I will be taken to a special recovery unit where I will be closely monitored. The area where the sheath was inserted will be assessed frequently after the sheath is removed. When an artery is involved, special plugs (called closure devices), stitches or compression devices are used to seal the hole in the artery after the sheath is removed. Closure devices remain in place and do not have to be removed.
   While many patients are discharged on the same day as the procedure. I will remain in the hospital as long as my physician(s) feel hospitalization is necessary. I understand that if I should receive a stent, I may be required to stay overnight.
   I understand that after I leave the hospital, I will still be recovering. It will take up to five (5) days before my physician(s) will allow me to resume normal activity, including driving a car and going up steps. If I experience any post-procedure complications, my recovery time could be longer. During the recovery period, my physician will follow my progress. I understand that I may need to be monitored on a long- term basis, and I agree to make myself available for examinations, laboratory tests and heart tests to see if my stent is still open and whether or not any new problems with the blood supply to my heart develop.

**MEDICAL RISKS OF THESE PROCEDURES: I understand that there are inherent risks in all procedures.**

1. **Risks involving the sheath.**
   - **Common:** (10%; 1 in 10 people) minor bleeding into the area surrounding the sheath site. Minor bleeding is generally treated by applying pressure to the site and may result in a hematoma (black and blue mark or a raised swelling). An actual tear in the artery where the sheath is inserted occurs less commonly (3-5%; 3 to 5 people in 100 people). Pseudo-aneurysm (weakening of the blood vessel wall) that may require an injection to repair may also occur 3-5% (3 to 5 people in 100 people).
   - **Rare:** (<1%; less than 1/100 people) AV-Fistula (an abnormal opening between an artery and vein) and loss of pulse in the extremity may occur. A tear in the artery may occur and result in bleeding into surrounding tissues. This bleeding requires additional treatment including the need for surgery known as, fasciotomy (incision into muscle tissue to release pressure) or other surgery to remove blood and/or blood clots)
   - **Bleeding** either during the procedure or after the procedure may, in a small number of cases, require a longer hospital stay, surgery on the groin and/or blood transfusions or blood products. (This is addressed ahead in this consent.)

2. **Risks associated with angioplasty and stent insertion.**
   - The **major and serious risks** associated with the angioplasty and stent insertion occur rarely (<1%; less than 1 in 100 procedures) and

include acute (during or shortly after the procedure; i.e. within hours or days of the procedure) vessel closure, acute clotting and blockage of the stent. Vessel closure, clotting and blockage of the stent occur suddenly and usually without warning and may result in heart attack or death. Delayed gradual blockage of the stent by scar tissue occurs more commonly (10-25% of cases), usually months after the procedure. This is known as re-stenosis. If re-stenosis occurs then another PTCA type procedure or open-heart surgery may be necessary to correct the blockage.

- **Very rarely** (less than 1%)
  - A tear of the heart (coronary) blood vessel by the catheter or by inflation of the balloon can occur, resulting in a need for immediate open-heart surgery (coronary artery by-pass grafting). A humanitarian use device, the GRAFTMASTER RX, is a covered stent that may also be chosen to seal the tear. (See additional information GRAFTMASTER RX CORONARY STENT GRAFT located at the below.)
  - Similarly perforation of the heart or blood vessels can cause serious bleeding into the sac around the heart (cardiac tamponade), requiring immediate drainage with a needle (pericardiocentesis) or surgical treatment.

## Humanitarian Use Device (HUD) Addendum

APPROVAL DATE: November 24. 2015
EXPIRATION DATE: November 24, 2018
**Western Institutional Review Board WIRB # 1160293**

**GRAFTMASTER RX - CORONARY STENT GRAFT:**

I understand that during the course of the procedure, conditions may become apparent that require my physicians or their designees to perform additional procedures or medical acts that they believe are medically necessary to achieve the desired benefits or for my well-being, including but not limited to, the use of a Humanitarian Use Device #H000001: GraftMaster RX® Coronary Stent Graft, WIRB #1160293, (Approval date11/24/2015; Expiration date11/24/2016). The GraftMaster RX device is a humanitarian use device (HUD) that, although authorized by Federal Law and approved by the FDA, has not been proven in clinical trials to be effective for its intended purpose – as trials of this nature would be unethical. As such, the GraftMaster RX is available only at institutions with the ability to regulate and monitor its use through an Institutional Review Board (IRB). Additional details about the device will be made available upon request. I authorize and request my physician(s) or their designees to perform any additional medical acts or procedures that they, in the exercise of their sole professional judgment, deem reasonable and necessary; and I waive any obligation on their part to stop or delay the continuation of my procedure in order to obtain additional consent. In the very unlikely event that I experience coronary artery perforation, occurring in less than 0.1% of patients (less than 1 out of 1000), my physician may elect to use a covered stent to seal the perforation and prevent the need for emergent cardiac surgery. This stent is a Humanitarian Use Device. This device has been approved by federal government agencies and does not pose a significant risk of injury to me - the patient - and that the potential benefit of the device to my health outweighs the risk of its use." The possible risk/side effects of this stent are similar to other stents explained on pages 2, 3 and 4 and include occlusion, clot formation, restenosis or dissection. Myinsurance provider and I will be responsible for any costs or charges associated with use of the GRAFTMASTER RX and the procedures needed to insert the device. All costs relating to my care will be billed in the usual manner.

**Available Adjunct Treatments**

- ✓ Reversal of anticoagulation
- ✓ Subsequent balloon inflations at the perforation site
- ✓ Operative intervention, including emergency CABG (Coronary Artery Bypass Graft) or pericardiocentesis (fluid drainage from around the heart).

**3. Other associated risks include:**

- **Common:** (2-5%)
  - Kidney dysfunction related to the X-ray dye that may prolong the hospital stay.
- **Rare:** (<1%)
  - Permanent kidney failure requiring dialysis.
  - Infection of the groin site for femoral access site procedures.
  - Irregular heart rhythms that may require treatment with drugs or electric shock to restore the heart rhythm
  - Stroke
  - Allergic reaction to the X-ray dye that may be minor (hives, itching redness) or severe and life threatening with low blood pressure, swelling of the throat and airways requiring emergency treatment including assistance with breathing
  - Dislodging of the stent from the delivery system before it is properly placed in the arteries of my heart muscle resulting in its loss.
  - Pneumothorax (collapsed lung) for neck procedures
- **Very Rare:** (less than 1%)
  - Disruption to the circulation of the toes and feet (Blue Toe syndrome) due to fatty particles being scraped off the aorta by the catheters
  - Nerve damage at the arterial access site
  - Very rarely, mechanical failures occur in the instruments used: such failures include breaks and malfunctions in wires and catheters and failures of the balloon to deflate. Dislodging of the stent from the delivery system before it is properly placed in the target artery of the heart muscle. These events may require additional medical or surgical care and may result in injury to the heart and even death.

4. **Additional risks associated with the right heart catheterization include:**
   - A clot may occur in the vein resulting in leg swelling or pain and may require treatment with anticoagulants (medications to thin the blood) thrombolysis (medication to dissolve the clot) or rarely, removal of the clot by the use of catheters
5. **If a biopsy is completed, additional risks include:**
   - Inadequate specimen for analysis or other inability to discover a diagnosis.
   - Bleeding at the biopsy site.
   - Perforation of the heart wall that could lead to death.

**HEMODYNAMIC SUPPORT DEVICES:**

I understand that during the course of the procedure, conditions may become apparent that require my physicians or their designees to perform additional procedures or medical acts that they believe are medically necessary to achieve the desired benefits or for my well-being. In the setting during which my blood pressure is low, or if my heart is weak and unable to efficiently circulate blood around my body, or if there are blockages in my coronary (heart) arteries that may pose increased danger to my health, my physicians may elect to place a device within me that helps to support my heart. These include, but are not limited to, the intra-aortic balloon pump (IABP), the Impella device, the TandemHeart device, or extra-corporeal membranous oxygenation (ECMO) device. (Additional information about each of these devices is available upon request.)

In understand that these devices may be placed in my body to help sustain the functioning of my heart in the most efficient manner. I authorize and request my physician(s) or their designees to perform any additional medical acts or procedures that they, in the exercise of their sole professional judgment, deem reasonable and necessary; and I waive any obligation on their part to stop or delay the continuation of my procedure in order to obtain additional consent(s).

I have been told that these devices stay in the body typically for a few days to 2-3 weeks and will be removed as soon as medically feasible. I understand that I have the choice to discontinue the use of these support devices should I desire to do so as a result of further deterioration in my health or quality of life. If I desire to discontinue support I should speak to my doctor. However, I do understand that discontinuing the use of these devices too soon may place my life at risk. My doctor may suggest that I also discuss this decision with the medical ethics team, which may include a medical social worker and physicians specifically skilled in dealing with these questions and decisions. I further understand that while the device is within me, it will significantly restrict my mobility.

I understand that there are additional inherent risks with the placement of any of these devices. The support that they provide for the heart may not be enough if the heart is very weak. If this is the case, your physician may discuss alternative treatments.

Failure of any of these devices is rare, occurring less than 5% of the time. However, if failure of the device does occur, it may become necessary to re-insert a new device.

Since the cannulas are placed in the large vessels of the leg, there is a risk that blood flow in the leg could be diminished. My doctors will carefully evaluate this condition. The frequency of significant reduction in blood flow to the leg and foot is about 3% with the intra-aortic balloon pump (IABP). Most frequently, this is treated by the removal of the device. However, in rare cases, surgery may be needed (0.5% of the time) – amputation of the limb is extremely rare (0.1% of the time). With the TandemHeart and ECMO, the frequency of significant reduction in blood flow to the leg and foot is 10-20%. This can be treated by removal of the device, but about 10% of those complications may need to be treated with surgery to fix the problem.

**Other rare risks involved with the placement of these devices include:**

- The need for another operation for removal of fluid due to infection, repair, or closure of a wound incision.
- An increase or decrease in blood pressure that would require further treatment.
- Some other abnormality of the cardiovascular system such as a rapid and/or irregular heartbeat that may require additional medical care.
- Blood clots that may travel to the brain (stroke), the kidneys, liver, or other parts of the body.
- Infection could develop in the wounds.
- Damage to red blood cells causing the need for transfusions. This occurs less than 1% of the time.

I understand that the above described and other risks/complications, either alone or in combination, can result in serious injury, paralysis, or other loss of function – or even death.

**CONSENT TO BLOOD OR BLOOD PRODUCTS:**

A blood transfusion is a life-saving treatment that benefits patients by treating or preventing blood loss, which can lead to a seriously low hemoglobin level (anemia) and cause damage to body organs due to lack of oxygen – including permanent brain damage. I understand there may be a need for me to receive transfusion(s) of blood or blood products. A physician or physician's representative has explained to me the nature, purpose, and benefits of receiving blood or blood products; risks/consequences of receiving blood or blood products; the alternatives, if any, to such use (including the risks of such alternatives) and the consequences if no blood or blood products are used. I understand that among, or in addition to other specific risks that have been explained to me by a physician or physician's representative, the use of blood or blood products has the following general risks:

**Uncommon (1-5% chance):**

- Mild reactions resulting in itching, rash, fever, headaches.

**Rare (<1% chance):**

- Respiratory distress (shortness of breath) or lung injury
- Exposure to blood borne micro-organisms (bacteria and parasites) that could result in an infection
- Possible effects on the immune system, which may decrease the body's ability to fight infection
- Exposure to blood borne viruses such as hepatitis B (an inflammatory disease affecting the liver)
- Shock

**Extremely Rare (one in a million or less):**

- Exposure to blood borne viruses such as hepatitis C (and inflammatory disease affecting the liver) and/or human immunodeficiency virus

(HIV) – the virus that causes AIDS.

- Death

☐ I consent to the administration of blood and/or blood products as considered necessary or advisable by my health care providers.

☐ I refuse the transfusion of blood and/or blood products and understand that I will be asked to sign a separate form entitled "Release from Liability for Refusal of Blood Transfusion.

**BENEFITS**:

I understand that the benefit of left heart catheterization, percutaneous transluminal coronary angioplasty (PTCA) and stenting is that discreet blockages in blood flow to my heart muscle can be corrected without the need for open-heart surgery. These procedures may prevent permanent heart damage from a heart attack as well as weakness in the heart muscle from loss of blood flow without surgery. Recovery time from the procedure is shorter than with open-heart surgery.

**ALTERNATIVES**:

I understand that I have the choice NOT to undergo this procedure. If I choose not to undergo the procedure, treatment for my heart disease (decreased blood flow to my heart muscle) may be attempted using medications or open-heart surgery. I acknowledge that my physician(s) or physician representative has described the alternative treatments, the risks and benefits of the alternative treatments, the likelihood of me achieving my goals; any potential problems that might occur during recuperation and the likely medical results should I decide not to undergo the recommended procedure.

**TEACHING FACILITY:**

I understand that the facility is a teaching facility. The health care team may include residents, fellows, students, and skilled healthcare professionals. Credentialed team members may perform all or parts of my procedure under the supervision and guidance of my physician(s).. Representatives of medical device companies may be present to provide devices, and observe and advise on their use. Who will participate and in what manner will be decided at the time of the procedure and will depend on the availability of individuals with the necessary expertise and on my medical condition. If an accidental exposure to my blood or body fluids occurs to staff during the surgery or procedure I agree to blood tests for hepatitis B, hepatitis C and HIV.

I understand that the physician(s) or others may choose to photograph, televise, film or otherwise record all or any portion of my procedure for medical, scientific or educational purposes. I consent to the photographing, televising, filming or other forms of recording the procedure(s) to be performed, including appropriate portions of my body, body functions or sounds, provided my identity is not revealed. I understand and agree that:

1) Any photographs, films, or other audio or visual recordings created will be the sole property of the facility: and

2) The facility or any appropriate staff member may edit, preserve, or destroy all or any part of the photographs, films, or other audio visual recordings. Such recordings are not part of the medical record and I understand I cannot obtain a copy.

I authorize the disposal or retention, preservation, testing, or use for scientific, educational or other purposes for all or any portion of specimens, tissues, body parts, or other things, including prostheses and medical/surgical appliances, that may be removed from my body.

I understand that if any medical device defined by federal regulations is implanted in a patient's body, the facility is required by law to report to the manufacturer the name, address and social security number of the patient and the description and identity of the device.

**CONFIDENTIALITY: Who will have access to my identifiable information related to the use of this device?**

In addition to the physicians listed on the last page of this authorization (consent) form and their clinical staff, the following individuals will or may have access to your identifiable information:

Authorized representatives of the University of Pittsburgh Research Conduct and Compliance Office may review my identifiable information related to the use of the device.

Authorized representatives of the manufacturer of the device, Abbott Vascular, will review and/or obtain my identifiable information for the purpose of monitoring the accuracy and completeness of the data and for performing required scientific analyses. Authorized representatives of the manufacturer may also be present during the use or placement of the device. While the manufacturer understands the importance of maintaining the confidentiality of my identifiable medical information, UPMC and University of Pittsburgh cannot guarantee the confidentiality of

this information after it has been obtained by the device manufacturer.

Authorized representatives of the U.S. Food and Drug Administration may review and/or obtain identifiable information for the purpose of monitoring the accuracy of the data. While the U.S. Food and Drug Administration understands the importance of maintaining the confidentiality of my identifiable medical information, the University of Pittsburgh and UPMC cannot guarantee the confidentiality of this information after it has been obtained by the U.S. Food and Drug Administration.

Authorized representatives of the UPMC hospitals or other affiliated health care providers may have access to identifiable information for the purpose of (1) fulfilling orders made by the physicians, for hospital and health care services (e.g., laboratory tests, diagnostic procedures); (2) addressing correct payment for tests and procedures ordered by the physicians; and/or (3) for internal hospital operations (i.e. quality assurance).

**MY SIGNATURE BELOW ACKNOWLEDGES THAT:**

1. I have read (or had read to me), understand and agree to the statements set forth in this consent form.
2. A physician or physician's representative has explained to me all information referred to in this consent form. I have had an opportunity to ask questions and my questions have been answered to my satisfaction.
3. All blanks or statements requiring completion were filled in before I signed.
4. No guarantees/ assurances concerning results of the procedure have been made.
5. I am signing this consent voluntarily.
6. I understand that I can withdraw my consent at any time prior to the procedure.
7. I hereby consent and authorize Dr. _____ ("my physician") and/or those associates, assistants and other healthcare providers designated by my physician to perform the procedure(s) described in this consent form. I understand that during the course of the procedure, conditions may become apparent that require my physicians or their designees to take steps or perform additional procedures that they believe are medically necessary to achieve the desired benefits or for my well-being including, but not limited to, right heart catheterization. I authorize and request my physician or their designees to perform whatever medical acts or additional procedures that they, in the exercise of their sole professional judgment deem reasonable and necessary. I waive any obligation on their part to stop or delay the continuation of my procedure in order to obtain additional consent if I am unable to give additional consent at the time.

| Date | Time | Signature of Patient (or Person authorized to consent for patient) |
|---|---|---|

| Witness | Relationship to patient (if signer is not the patient) |
|---|---|

I have explained to the person signing the above – all of the information contained in this consent form. I have given no guarantee or assurance as to the results that may be obtained.

| Date | Time | Physician Signature |
|---|---|---|

**INTERPRETER'S STATEMENT**

**Execute if an interpreter is provided to assist the individual in understanding this informed consent form:**

**I have translated the information and advice presented orally to the individual to be treated by the person obtaining this consent. I have also read him/her the consent form in language and explained its contents to him/her. To the best of my knowledge and belief he/she understood this explanation.**

_____

**Cyracom ID (if applicable)**

_____

**Print Name**

_____

**Signature (Not required if a Cyracom Interpreter Was Used)**

# ANEXO 4. CONSENTIMIENTO INFORMADO PARA CARDIOVERSIÓN ELÉCTRICA.



Patient Name: _____
Identification Number: _____

**CARDIOVERSION DIRECT-CURRENT CONSENT FORM**

I, _____, have been asked to carefully read all of the
(name of patient or substitute decision-maker)
information contained in this consent form and to consent to the procedure described below on behalf of _____.I have been told that I should ask questions about
(name of patient)
anything that I do not understand. (If the person making the decision is not the patient, the words "I," "me" or "my" will be used to refer to the patient instead of the person signing the form).

My doctor(s) have told me that I need to have a procedure done which will stop an abnormal rhythm in my heart so that my normal rhythm can resume control. This is being recommended because tests have indicated that my heart is beating irregularly and/or too fast. This procedure is called direct current cardioversion.
I understand that I am being given this information about cardioversion to help me make an informed decision whether to voluntarily consent to having it done. The information in this consent form, in addition to discussions with my physicians and other health care providers and any other written material they may provide, is intended to give me the information I need to make my decision.

**Description of the procedure:** Prior to this procedure, I will be given medicine in my veins to keep me relaxed and sleepy. The doctors and nurses will continually monitor my heart rhythm. The doctor(s) will place pads on my chest. Then, using a special machine called a cardioverter/defibrillator, they will deliver a carefully measured electrical current to my heart at a precisely timed moment. This will stop the abnormal rhythm in my heart. Within a few seconds, my normal heartbeat should resume. If my normal heartbeat does not resume control of my heart, the doctors and nurses will give me appropriate therapy. This may include delivering the electrical current more than one time. I understand that although the procedure is intended to be helpful, its goals may not be met, and it may not be of any benefit to me.

**After the procedure:** Cardioversion usually takes less than an hour, but may take longer. After the procedure, the nurse will check my blood pressure, pulse and heart monitor, and will watch me to be sure when the medication used to make me sleepy wears off. I understand that I will not be able to eat or drink anything until the doctor or nurse tells me that I am awake enough to do so. My heart rhythm will be watched for a period of time determined by my doctor to make sure it remains normal. Then I will follow up with my doctor in his/her office when instructed to do so.

**Risks of the procedure:** All procedures have possible risks. Some risks may be unknown or unforeseen. More commonly known risks of the procedure include:

- Reactions to the medications used to keep me comfortable; these medications will be given to me through my veins, and may relax me too much, which can cause inadequate breathing, lack of breathing, and/or low blood pressure; additional treatment may be needed.
- Allergic reaction to the medications used – this could include hives, dizziness, headache, difficulty breathing, or lack of breathing; if these symptoms occur additional medical treatment may be necessary.
- Mild burns on my chest from the cardioverter/defibrillator

Patient Name: _____
Identification Number: _____

**CARDIOVERSION DIRECT-CURRENT CONSENT FORM**

- Need for additional medical treatment if my heart does not resume normal control after the direct current cardioversion
- Need to have more than one electrical shock to get the abnormal rhythm stopped
- Blood clot(s) to my arm, leg or other body part. In the lungs, they can cause serious interference with breathing, which can lead to death. Blood clots are treated with blood-thinning drugs that may need to be taken for an extended period of time
- Stroke
- Death

My doctor(s) have told me that this procedure is not always successful in allowing the normal rhythm of the heart to resume. This means that I may still have the abnormal rhythm after the cardioversion. Also, my heart may go back into the abnormal rhythm at a later time. The doctor(s) have reviewed with me the approximate success rate that is specific to my condition. They have also reviewed the above risks with me, and talked to me about my individual risk. They have explained that if any of the above risks occur during or after my procedure, they will start appropriate therapy.

**Alternatives to this procedure:** I acknowledge that my physician(s) has described the alternative treatments, the risks and benefits of the alternative treatments, the likelihood of me achieving my goals; any potential problems that might occur during recuperation and the likely medical results should I decide not to undergo the recommended procedure.
If my procedure is to be performed in an Ambulatory Surgical Facility (ASF), the comparative risks, benefits and alternatives associated with performing the procedure in the ASF instead of a hospital have been fully explained to me.

**Teaching Facility:** I understand that the facility is a teaching facility. The health care team may include residents, fellows, students, and skilled healthcare professionals. Credentialed team members may perform all or parts of my procedure under the supervision and guidance of my physician(s). My attending physician may also be caring for one other patient during my procedure, but remains responsible to me and will perform or be present for the key portions of the procedure. Representatives of medical device companies may be present to provide devices, and observe and advise on their use. Who will participate and in what manner will be decided at the time of the procedure and will depend on the availability of individuals with the necessary expertise and on my medical condition. If an accidental exposure to my blood or body fluids occurs to staff during the surgery or procedure I agree to blood tests for hepatitis B, hepatitis C and HIV.

I understand that the physician(s) or others may choose to photograph, televise, film or otherwise record all or any portion of my procedure for medical, scientific or educational purposes. I consent to the photographing, televising, filming or other forms of recording the procedure(s) to be performed, including appropriate portions of my body, body functions or sounds, provided my identity is not revealed. I understand and agree that 1) any photographs, films, or other audio or visual recordings created will be the sole property of the facility: and 2) the facility or any appropriate staff member may edit, preserve, or destroy all or any part of the photographs, films, or other audio or visual recordings. Such recordings are not part of the medical record and I understand I cannot obtain a copy.

I authorize the disposal or retention, preservation, testing, or use for scientific, educational or other purposes for all or any portion of specimens, tissues, body parts, or other things, including prostheses and medical/surgical appliances, that may be removed from my body.

Patient Name: _____
Identification Number: _____

## CARDIOVERSION DIRECT-CURRENT CONSENT FORM

I understand that if any medical device defined by federal regulations is implanted in a patient's body, the facility is required by law to report to the manufacturer the name, address and social security number of the patient and the description and identity of the device.

**My signature below acknowledges that:**

- **I have read (or had read to me), understand and agree to the statements set forth in this form.**
- **A doctor has explained to me all information referred to in this consent form. I have had an opportunity to ask questions and my questions have been answered to my satisfaction.**
- **All blanks or statements requiring completion were filled in before I signed.**
- **No guarantees or assurances concerning the results of the procedure or any benefit to the recipient have been made.**
- **I am signing this consent voluntarily. I am not signing due to any threat, coercion, offer of payment or other influence.**
- **I understand that I can withdraw my consent at any time prior to the procedure.**
- **I hereby consent and authorize _____ (my doctor(s)) and/or those associates, assistants and other health care providers designated by my doctor(s) to perform the procedure(s) described in this consent form. I understand that during the course of the procedure, conditions may become apparent that require my doctor(s) or their designees to perform additional procedures that they believe are medically necessary for my well-being, including but not limited to administration of medication. I authorize and request my doctor(s) or their designees to perform any additional procedures that they, in the exercise of their professional judgment, deem reasonable; and I waive any obligation on their part to stop or delay the continuation of my procedure in order to obtain additional consent.**

_____ _____
Witness Signature of patient or person authorized to consent for patient

_____ _____ _____
Date Time Relationship to patient if signer is not the patient

I have explained the nature, purpose and risks/consequences of the above-described treatment, alternative methods of treatment (including risks of such alternatives) and the consequences if no treatment is undertaken. No guarantee or assurance has been given by me as to the results that may be obtained.

_____ _____ _____
Date Time Signature of physician

Patient Name: _____
Identification Number: _____

**CARDIOVERSION DIRECT-CURRENT CONSENT FORM**

## INTERPRETER'S STATEMENT

Execute if an interpreter is provided to assist the individual in understanding this informed consent form:

I have translated the information and advice presented orally to the individual to be treated by the person obtaining this consent. I have also read him/her the consent form in language and explained its contents to him/her. To the best of my knowledge and belief he/she understood this explanation.

_____
Cyracom ID (if applicable)

_____
Print Name

_____
Signature (Not required if a Cyracom Interpreter Was Used)

## ANEXO 5. COMPATIBILIDAD DE MEDICACIONES.

**Key:**

- = Compatible
- = Incompatible
- = A drug intersects with itself
- = The relationship was investigated and the results were equivocal.
- = No data available